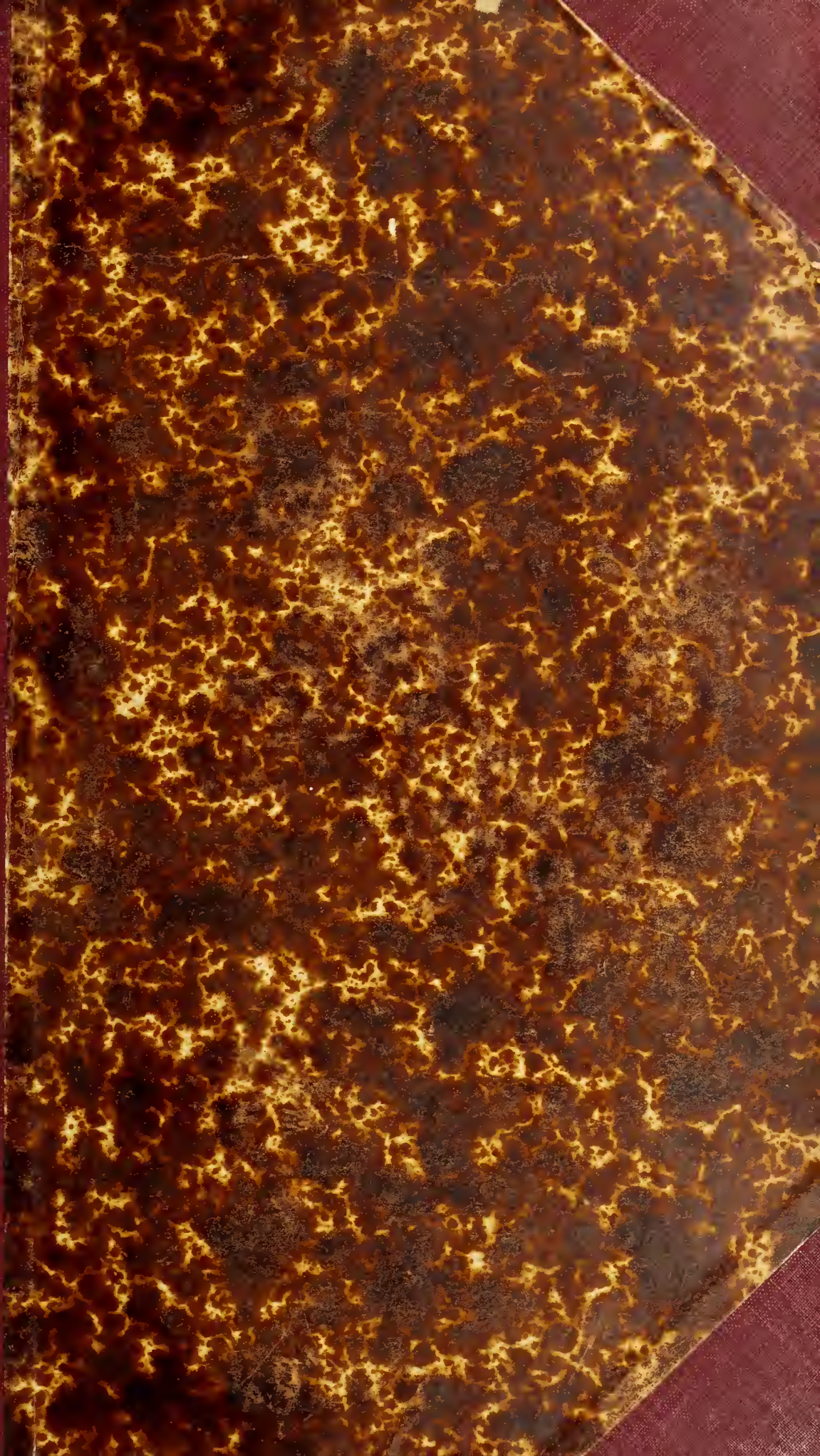


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Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

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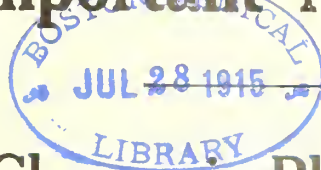
EDITORIAL NOTES.**A NEW YEAR; A NEW VOLUME.**

First, a very Happy New Year to all! Get the spirit of a newly created something, with all the potential good that there may be in it, and rejoice that you have a new and untouched year ahead of you. May it be as full of happiness as you can tolerate, and may it contain, for you, the minimum of sorrow, sadness or unhappiness. May the hand that writes inscribe on the three hundred and sixty-five pages of this new book the greatest number of good and pleasant things and the least number of the opposite sort of things of any year of your life. On the next page will be found an editorial note that appeared in the January JOURNAL five years ago; it is as true to-day as it was then, and so we reproduce it.

PROPER RECIPROCITY.

The Fresno *Republican*, in its issue for November 21, again discusses the STATE JOURNAL and the question of medical reciprocity, and asks "will the JOURNAL say whether it favors a reciprocity law such as most other states have, to apply to states having equally high standards?" Most unequivocally, yes. Not only does the STATE JOURNAL approve of a *proper* reciprocity law, but the State Medical Society, when it prepared the law of 1901, included in that law a reciprocity clause. Is that sufficient indication of the attitude of the Society and of its JOURNAL? The then Board of Examiners requested New York, and, if memory serves, Pennsylvania and New Jersey, to enter upon such reciprocal arrangements; but with what result? California was told that New York would not reciprocate because the standards required in Cali-

(Continued on Page 3.)

Important Notice!**Change in Place of Meeting, 1913.**

The Annual Meeting for 1913 will NOT be held at Santa Cruz.

About the middle of December, the Council was notified by the proprietor that the hotel at Santa Cruz would be closed till some time in May; it then became necessary to change the place of meeting. The Council met on December 21st and considered a number of places, finally decided to hold the

Annual Meeting April 15, 16 and 17, 1913

AT

OAKLAND**REMEMBER THE PLACE****OAKLAND****REMEMBER THE DATE**

Tuesday, Wednesday and Thursday,
April 15, 16 and 17, 1913.

And be sure to attend.

There will be clinics arranged for one day in Oakland and Friday and Saturday, after the close of the State Society sessions, in San Francisco.

**It will be a big meeting.
COME!**

A NEW YEAR PRAYER.

To all of our readers, greeting! May the year deal kindly with you, and bring you much that is good and little that is of sorrow or trouble; may the spirit of peace and harmony prevail with you throughout the year, and may the mantle of jealousy drop from you as a rag that is worn out; may charity, justice and brotherly love guide you always in your thoughts of and your relations with your fellow practitioners of medicine; may it bring an end to bickerings and dissensions, and, departing, may the year leave with you a better stored mind, contentment with yourself and your fellows and the inward knowledge, from which comes peace of mind, of a twelvemonth of good, honest work, done with the very best that is in you and to the betterment of at least a portion of mankind. Give of your time and your brains the best you have to your medical society, that, in so giving, you may unselfishly help the entire medical profession and the people who are dependent upon it for health and protection; where there is an active and industrious medical society, there will you find good doctors and responsive and grateful patients. Let no word of idle slander or supposititious criticism of a colleague pass your lips; if you cannot speak well of a brother physician, speak not at all, for when you disparage another physician you hurt yourself as well and the entire profession is belittled in the eyes of the people. May your interest in your medical society work increase with the passing months, and may the year close upon a more closely united and more intimately related medical profession, thus giving to the people of our state the very best medical supervision. May happiness be with you, one and all.

(Continued from Page 1.)

fornia were lower than those required in New York! It is quite possible that, as several years have elapsed since this unpleasant incident, New York and some of the other states in which there are high standards of medical education, might assume a different attitude and be willing to exchange recognition of certificates obtained in either state under similar conditions. It is silly to ask a physician who passed an examination in New York or New Jersey or Michigan last year to take another examination in California this year. There is not, never was and never could be any argument on that. If the *Fresno Republican* is clamoring for reciprocal recognition of certificates issued upon a basis of equal (*and equally high*) medical standards, then there is no room for discussion. If, however, the *Republican* would have California reciprocate only with second and third class states in which registration is more or less of a farce, or a matter of form, then is there room for a good sized argument—or none at all, as you see it! It is this latter form of reciprocity that is loudly demanded by a number of those who have applied to the California Board and failed to pass the examination. Very, very few of those rejected could qualify under a proper reciprocity law, such as we presume the *Republican*, like the *STATE JOURNAL* and the State Medical Society, would approve and endorse; and both the *STATE JOURNAL* and the State Medical Society have gone on record as approving such a proper reciprocity law by helping to enact and supporting the reciprocity clause in the law of 1901. The *Republican* is greatly in error if it thinks that "wide open" reciprocity—the kind that would let in anyone and everyone—is "a measure which nobody has proposed and no sensible man will propose." It has been proposed; it will be proposed and a bill creating it will be introduced in the next legislature. There will also be introduced a bill creating a proper and acceptable form of reciprocity; the kind referred to as desirable by the *Republican*. We take it that the *Republican* will help us to pass the latter and reject the former? Is there anything in the nature of "evasion" about this statement of the attitude of the *JOURNAL*? The good amendment referred to, creating proper reciprocity, has been prepared by the attorneys for the State Board of Medical Examiners in consultation with members of the board, of the State Society and of laymen interested in the subject and has the endorsement of the State Society and of the *JOURNAL*, but if it is neither defeated nor so materially amended that a *low* and *not* a high standard of requirements will be the basis for reciprocity, we shall be very agreeably surprised.

PROGRESS IN ANESTHESIA.

The last few years have seen considerable progress in the development of improved anesthetics and improvement in the manner of producing anesthesia. It is quite a while since the spectacle of two or three husky men holding one poor patient while another helper crowded a mask over his face,

has faded away. Gwathmey has recently made a suggestion that, during the limited time it has been tried, seems to be a distinct advance in anesthesia. He begins the anesthesia with two to four drops of essence of orange (25% U. S. P.) and then continues with the drop method of ether anesthesia. In a recent paper in the *Journal* of the A. M. A., he highly commends the work of the Committee on Anesthesia of the Association and recommends that it be continued. He also suggests that the future development in anesthesia should be along the line of some form of "vapor anesthesia."

THAW AND SCHRANK.

The contrast between the two cases of the murderer Thaw and the would-be murderer Schrank (the man who took a shot at Mr. Roosevelt) is the most striking and instructive comment on expert evidence that has come along in many a day. We all know—and blush for—the disgraceful fight of "medical experts" in the Thaw case; and in so many other cases, too, by the way. In the Schrank case the Judge, A. C. Backus, appointed a commission of five experts to determine whether the man Schrank was sane or not. They reported unanimously that he was not sane and he was promptly committed to an insane asylum; the charge against him remains and should he at some time in the future claim to be cured of his insanity, he will still have to face a trial for his murderous assault. Six weeks after the shooting, and without a trial that would have given a chance for much posing and great notoriety, he was committed to an insane asylum in the charge of the court. There is some hope after all.

CONGRESSES AND CLINICS.

The great surgical congress recently held in New York seems, from the accounts of it in the eastern journals, to have been a marked success. The program was certainly enormous enough to satisfy the most greedy and to furnish anyone with surgical yearnings enough material for long and careful thought. It has been suggested that the surgical congress be invited to meet in San Francisco in 1915, but when one considers the program offered at the last meeting, and the paucity of clinics and clinical material to be demonstrated in San Francisco, it would almost seem to be an excess of temerity even to suggest such a thing, no matter how greatly we might desire to be the hosts of the surgical congress. Just what congresses or conventions will be held in San Francisco in the exposition year, it is not possible to say. The American Medical Association will be invited to meet there and a committee of the Association has suggested that a large congress of those interested in hygiene, preventive medicine, tropical diseases, etc., be held in connection with the exposition. What will be the outcome of this proposition remains to be seen; of course the Association cannot decide until 1914 the place of meeting in 1915, but at the present writing there seems to be a certain feeling of willingness to come to San Francisco at that time.

EDDYITE CONTRADICTIONS.

The "Eddyite" is a curious animal. He denies the existence of disease (except as an error of thought!) and in the same breath claims to produce wonderful "cures." He clamorously announces that enormous numbers of patients "given up" by regular doctors are brought back to life and health by his absent treatments; and he never refers to these wonderful "cures" when they soon die. He claims a far advanced religiosity, and does mighty little "treating" that is not well paid for. All this is suggested by the death of an actress, Mabel Hite, from cancer, on October 22. She had been "cured," only a very short time before, by Eddyite treatment. One cannot but be sorry for poor Miss Hite.

BOHANON AMENDMENT UNCONSTITUTIONAL.

The legislature, two years ago, passed an amendment to the medical law which was signed by the governor on the last day of statutory grace. This amendment compelled the board to issue a license to anyone practicing a specialty, provided he had practiced it for 35 years and in California for 15 years. In other words, it licensed anyone who had broken the laws of the state for 15 years to keep on with the work that was originally illegal! Bohanon, a cancer "specialist" of Oakland, applied, with several others, for a license under this amendment. The Board of Examiners denied the application and he took the case into court where the law was decided to be unconstitutional. He will, in all probability, take the case to a higher court unless the present legislature passes another amendment designed to fit his particular case.

SUICIDAL CONTRACT PRACTICE.

It is a shame that the illuminating disclosures that are being made in England in the course of the discussion of the National Insurance Act and the refusal of the members of the British Medical Association to serve the government under it, cannot be brought to the thoughtful attention of every physician in this country. The medical profession of this country has not yet reached the stage of degradation that has been achieved in England, but it is rapidly on the way and will reach it unless physicians awake to the fact that "dollar-a-month" companies and lodges giving free medical service to their members are merely exploiting the physician for the layman's gain. Mr. Lloyd-George, in a recent speech in Parliament "thought he could safely say that contract practice in all forms provided for more than half the working population" of England! Just imagine over half the working population of this country getting its medical service at the rate of about ten cents per visit! Nearly all the "clubs" or "societies" as these contract companies or organizations are called in England, were organized and are owned by lay people who reap the profits and pay the doctor as little as they possibly can. In certain sections of England there are practically no people who are not in some club or society and thus there are no private pa-

tients for the physician. Mr. Lloyd-George intimates very plainly that the government is seriously considering a state medical department to do the work under the Insurance Act, as the members of the British Medical Association refuse to do it. English ideas of the value of medical service must be startlingly peculiar if one may believe the statement made by Mr. Lloyd-George that "6d. (12 cents) should be set aside for paying the general practitioner for all the work he did in reference to the treatment of tuberculosis" and that "he had no doubt at all that 6d. was more than adequate"!!

MEDICAL BUILDINGS.

Nearly every member of nearly every county medical society pays office rent to somebody; and the county society, in most counties, also pays rent to somebody. Why not pay office rent to ourselves and devote the profits to improving the society library building, scientific work, etc.? This is not a foolish question but a straight business proposition. In Los Angeles, a magnificent building is to be erected and the financial plan is such that at the end of about twenty years or a little less the building, and its income, will be the property of the Los Angeles County Medical Association. In San Francisco, a building committee has been at work for some two or three months on a similar scheme and at the annual meeting in December reported that the plans, while still indefinite as to details, had been endorsed by bankers, architects, contractors and lawyers and that a definite plan would soon be adopted and a two million dollar home secured which, at the end of some fifteen years or so, would become the property of the San Francisco County Medical Society. It is simply a matter of paying rent to ourselves instead of paying it to some one else. The same plan could very easily be adopted in a number of the smaller counties. Oakland, Sacramento, San Jose, Fresno, Stockton, and a number of others have enough physicians, all paying rent, to support a Medical Building, under the control of the county society, which, by proper financing, would, in a few years, be the property of the society and produce an income that would support a good deal of active scientific work. There's something to think over for this year. Why not take it up for serious consideration?

DECEMBER EXAMINATION.

The December examination of the Board of Medical Examiners was held in Los Angeles the first week in December. There were 140 applicants and of these 135 were admitted to take the examination and 5 rejected for insufficient credentials. At the time of the examination, one applicant was expelled for cheating. The candidates who took the examination and have since passed through the JOURNAL office, say that it was very fair but not at all easy. A written examination is, at best, but a poor test of individual ability and it is to be hoped that the day will come when a more practical and rational method of examinations, more after the plan of the British examinations, may be adopted in this country.

THE NEXT ANNUAL MEETING.

Do not forget that the next annual meeting of the State Society will be held April 15, 16 and 17; Tuesday, Wednesday and Thursday. The various county societies did not vote to change the time of the meeting. The Chairman of the Committee on Scientific Work is Dr. Dudley Fulton, of Los Angeles and those who desire to present papers should write to him at once, "lest they get left." Begin right now to make your plans to attend this meeting. In the House of Delegates, every county society should have its full representation, as matters of the utmost importance will come before that body. A recommendation will be made that the Medical Defense rules be amended so as to exclude from protection (after a date at least six months in advance) any member who may be sued for alleged malpractice in the treatment of any fracture or any surgical operation, unless he had a consultant at the time of treatment or operation. That is worth careful thought. Also, the increase in the number of such suits and the very great increase in the cost of protecting them, will come up for discussion and action. Make your plans now to attend the meeting in April.

EDUCATIONAL ASSISTANCE.

Unfortunately, we none of us know so much that we cannot be taught a little more; some of us would be benefited by a whole lot of teaching! Apropos of this fact the suggestion has been made to us that it would be a good plan, if practicable, for the American Medical Association to employ a certain number of competent teachers to go about the country visiting the various county societies and staying long enough to give courses of lectures or instruction in the more recent advances of medicine. It is difficult for the busy practitioner, especially in the country, where distances are great, to keep up with what is being discovered in these progressive days. More than likely there are a good many physicians to whom "Wassermann," "luetin," etc., are but vague words. The idea is very "sketchy" and may not be practicable, but we turn it over to the Association authorities to consider and do with as they please.

WIDELY DISTRIBUTED INTEREST.

It has been a matter not only of great interest but of some small pleasure to note the widely distributed territory in which the JOURNAL seems to be of enough interest to be fairly well read—or looked through. A few copies go into nearly every state in the United States and some to England and Europe generally. At least one reader in every state in which the JOURNAL circulates, has written to us asking for "stickers" which were first advertised in the September issue; two or three requests have come from England and Canada and the following post-card was recently received from a reader in Germany: "You would much oblige us by sending us a set of 'stickers' as mentioned in the STATE JOURNAL ADVERTISER." Even our advertising pages seem to be worth the attention of a good many who receive the JOURNAL; they are

readers who are up-to-date; no one can be up-to-date, in these days, unless he pays attention to the advertising pages of the reputable publications that pass through his hands.

ORIGINAL ARTICLES

ON THE TOLERANCE OF THE VITREOUS TO DISLOCATED LENSES, AS AN INDEX TO RECLINATION IN GIVEN CASES.*

By P. de OBARRIO, M. D., San Francisco.

It has been my privilege to come in contact in my years of practice in the tropics with a number of unusually complicated and neglected eye affections. I said privilege to the full extent of the word, for the important reason that, because of the same neglect I have been able to gather most valuable data, which I feel would have been impossible to get in the neighborhood of large centers with hospital facilities and public clinics, as these cases would have been in all probability attended to, and the opportunity of observing the very late results of a good many ocular affections not subjected to treatment would have been lost.

Due to this same reason I have been able to report the largest case of binocular, double internal and external pterygia on record¹ giving in detail the manner of treatment and mentioning some original observations concerning the prognosis of these cases as regards the distribution of capillaries of new formation after surgical intervention, based on an extensive experience on the treatment of this affection.

Such observations have been favorably confirmed and commented upon by my friend and colleague, Professor Terson of the University of Paris, in his most excellent and instructive article describing his recent and new procedure in the surgical technic of pterygia, which to my mind is exceptionally good and to which I expect to dedicate a special chapter.²

On the same order of things I have met and kept in touch with the cases that I am about to report from which I have drawn such conclusions as have at a later period guided me in the successful management of complicated cases in a manner that is neither taught nor learned except by coming in contact with this kind of material which is not generally found in the clinics. These cases have been both traumatic and post-operative and I take them from my practice as they have come to my observation from time to time and in different countries.

The first case is that of Mr. S., thirty years of age, a druggist as well as farm owner, whom I saw for the first time in the Republic of Salvador, the year 1902. He came to my office to be prescribed for glasses and I at once observed that his right eye was aphakic.

He explained to me that seven years previous he had been thrown from his horse and had received a violent blow on this eye. After the reaction subsided he noticed that he could see much less out of this eye.

The ophthalmoscope revealed the presence of an

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

opaque lens dislocated downwards into the vitreous chamber very freely movable and attached to the ciliary region only by a slight filament. He claimed he was never troubled by this eye, with the exception of conjunctival irritations in both eyes from time to time, due principally to his outdoor life, exposed to the great tropical heat and dusty roads. The lens was apparently not much reduced in size and his vision was improved to 20/30 with a plus 10 D. I advised him to seek treatment the moment he noticed any reaction on this eye.

I have recently heard from a physician friend, who resides in San Salvador who is personally acquainted with the case and he informs me that the patient is doing well; has never had any particular trouble with this eye and has required no treatment. This case, therefore, has had a dislocated lens in his vitreous during seventeen years and has not been any worse for it. A partial or total absorption of his lens must have taken place and it is fair to assume that if after these many years he has had no reaction, the chances for any further trouble are very slim.

The second case is that of a school boy fifteen years of age whom I saw the year 1903 in Panama. The patient had opaque lenses in both eyes as a consequence of having fallen from a carriage three years previous and struck the back of his head on the stone pavement, having been unconscious for over an hour. Both lenses were completely opaque so that he had only light perception. After dilating the pupils, which is a practice I always undertake in every cataract case, I could detect an almost imperceptible tremor of both lenses upon rapid motion of the eyes; but so slight was this that I could not pronounce myself definitely on this matter. I proposed the extraction which was cheerfully accepted.

Immediately after the counter-puncture of the cornea, I noticed that the amount of what seemed to be the aqueous was exceedingly large. Upon closer observation, however, it proved to be nothing else but the greater part of a completely liquefied vitreous which by the time the incision was finished at least one-half had escaped. With great precaution, an attempt was made to extract the lens which turned backwards into the vitreous chamber like a door on its hinges and any further attempt was out of the question.

The iris was carefully replaced into the anterior chamber and a small amount of sterile saline solution injected with a dropper under the cornea in order to replace to a certain extent the great amount of fluid lost.

The patient had an uninterrupted recovery and a very useful eye to the extent of 20/30 with the correcting lens.

Three months after this operation while he was acting as catcher at a baseball game he was struck on his left eye (not operated) with the ball with such force that he was rendered unconscious for a long time. He tells me he had considerable swelling of the lids and that he kept his eyes bandaged for several days. As soon as he was able to open the lids sufficiently he was astonished to observe that he could see out of this eye.

I saw the case one year after the accident and found his left lens dislocated into the vitreous in the same manner as that of his right eye that had been operated upon, and he had an equally good vision out of this eye as of the other. I have observed this case from time to time up to December, 1910, when I left the Isthmus of Panama, and at no time was this patient troubled with his eyes in spite of his being an unusually active and restless youngster.

When I last saw him I observed that neither of the lenses was as freely movable as at an earlier period after their dislocations and apparently they were undergoing gradual absorption as they were

slightly diminished in size. This patient has stood nine years with the lenses in the vitreous and I presume that as he is now quite a young man and his lenses would probably be absorbed, that there is no cause for apprehension in the future.

In 1903 likewise, I had the opportunity to treat a colored boy of about 16 years of age with double traumatic cataracts. Both eyes showed very fluid vitreous and tremulous iris. In this case I did not pretend to attempt any extraction but, based on my previous observations, I deliberately luxated both his lenses backwards and downwards into the vitreous chamber with an interval of ten days between the operation of one eye and that of the other.

The method consisted in performing a very small corneal incision very close to the scleral margin and located towards the external canthus, just sufficiently large to admit the introduction of a medium size strabismus hook which upon being placed into the anterior chamber, it was guided through the pupil into the posterior chamber so that the very tip rested on the upper border of the lens. With one turn of the handle on its axis the lens was made to descend and rotate backwards.

The first eye was operated with local anesthesia and the second with general narcosis. It is important to be positive that the lens remains dislocated as there might be some filaments to pull it back into the pupillary area; however, these details concern another article on some observations pertaining to a series of similar cases.

The patient has had no trouble of any nature with his eyes up to date and his vision was 20/30 with the correcting glasses.

I will not trouble you with the history of the next two cases; they both belong to the laboring classes and were admitted to St. Thomas Hospital at Panama in 1906; one in January, the other one in March. The first case was forty years old and the other thirty-seven. The first case had received a severe blow on his left eye five years previous, while the other patient presented a recent traumatism. Both these patients had necessarily had violent reactions from their external trauma, but as far as their eyes were concerned they presented round, central, movable, jet black pupils with their lenses dislocated into the vitreous, and very useful sight.

Here is then a series of cases in which the lens has been dislocated into the vitreous chamber for periods varying between six and seventeen years, in relation with patients whose ages have varied between fifteen and forty years. The results of these cases are in entire accord with the general knowledge one has on this question of vitreous tolerance to dislocated lenses which fact has been a matter of record since the dawn of ocular surgery. In fact, it was the basis of the method of treatment by reclinacion.

Speaking on this subject Professor Panas of Paris has the following to say:³

"Generally speaking the luxation in the vitreous provokes a lesser reaction than in the anterior chamber. The most frequent complication is an iridocyclitis that is very rarely combined with glaucomatous symptoms. I generally prefer to abstain from interfering, remembering the great tolerance of the vitreous during the practice of reclinacion of the cataract."

Professor Fuchs of Vienna⁴ expresses his views in this manner:

" . . . On the other hand luxation of the lens into the vitreous is the form best tolerated, specially if the lens as time goes on, becomes smaller through resorption. In fact, in the depres-

sion of cataract one used to count upon this tolerance of the eye towards the lens when depressed into the vitreous."

Other authors are of the same opinion.

In view of this fact I believe it is improper and much to the disadvantage of a certain group of cases, to relegate to oblivion a surgical procedure which in its day had a wide range of usefulness. Undoubtedly if we had reliable statistics of the post-operative results in the practice of reclination I feel confident that there must have been many disasters which should be attributed principally to the fact of having adopted a trans-scleral puncture as well as to the most important reason of having performed these operations during the pre-aseptic era when surgeons were practically making unconscious stab cultures in the vitreous, a most excellent medium for bacterial growth.

As an immediate result of these observations, I have established for some time past the practice of reclination in the treatment of tremulous cataracts, as the safest means to obviate the dangers of extraction, as there is nothing to support the immediate flow of large quantities of vitreous when the zonula is defective and the vitreous very fluid. The detailed observations relating to a series of such cases is the basis of another study.

I will insist on the fact that if in some of these cases which have been the consequence of violent traumatism and have received but very indifferent treatment, the ultimate and remote effects have been so satisfactory, it is proper, natural and logical to presume that under modern aseptic precautions and with the technic I have casually hinted at in the course of these observations, the results should be and in fact are most encouraging.

References.

- (1) "Un caso excepcional de terigion y algunas consideraciones sobre el tratamiento de esta afeccion." Dr. P. de Obarrio—*Anales de Oftalmologia*, Vol. V. Mexico, 1903.
- (2) "Sur la structure, la pathogenie et une operation modifiée du pterygion." A. Terson, *Archives Ophthalmologie*, Paris, Mars, 1911.
- (3) *Traite des maladies des yeux*, pages 613-614.
- (4) *Text Book of Ophthalmology*, page 392.

Discussion.

Dr. Kaspar Pischel, San Francisco: In former centuries "Staar-Stecher," who were not physicians, traveled from town to town during fair-time to make reclinations. The scientific surgeons gave up reclination of cataract in the nineteenth century, principally on account of the frequent occurrence of glaucoma after such operations; the fact that asepsis was not known at that time must have contributed a good deal toward unfavorable results.

Dr. Vard H. Hulen, San Francisco: I believe with Dr. de Obarrio that there are cases that could rightly be submitted to the reclination operation. Several years ago I reported at the meeting of the American Medical Association an experience with a cataract patient. Many years before I saw the patient his right eye had been operated upon by a competent man and the cornea was left opaque. I was called upon to operate upon the left eye and thinking that possibly the methods of handling his eye might have something to do with the opacity of the cornea I took every precaution with the second eye. There were no complications but the cornea was left opaque. I reported this case before the Section on Ophthalmology of the American Medical Association and stated that if I had another opportunity to operate upon such a patient

that I would feel justified in doing a reclination in the second eye. The discussion was overwhelming against the suggestion and I mention it now because with Dr. de Obarrio's contribution I should feel more encouraged to try it in such a case than I did then.

Dr. P. de Obarrio, San Francisco: The subject of this paper is but a preliminary investigation as to the tolerance the vitreous has to the dislocated lense and a subsequent paper will follow in which I will relate my experiences with several cases. The question of reclination has been a matter of practice since the dawn of ocular surgery. The operation of reclination is practiced to-day daily in India. It is a pity that it is in the hands of non-professional men that do not observe the proper technic and they have no knowledge of the anatomy of the place upon which they are operating. With all that, their results are very frequently brilliant. The application of reclination in tremulous cataracts I believe is a very valuable procedure and I have adopted it regularly for years past.

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NEUROSES OF THE MOUTH AND THROAT.*

By M. W. FREDRICK, M. D., San Francisco.

No doubt a number of you have experienced the elderly lady, generally of Hebraic or Celtic extraction, who positively asserted, and had a mass of historical facts to bear out her assertion, that she had a hair in her throat which had been there for many days. After several vain attempts to find the hair either the patient concludes to try some more skillful practitioner, or she has been rid of her hair by psychotherapy and mild local measures. Nothing is more exasperating than the search for a peg upon which to hang a diagnosis without discovering the slightest excrescence to support an opinion. We feel that we may be amongst those against whom the medical epigram "More mistakes are made by not seeing than by not knowing" is directed, and we tire our eyes and brain trying to discover even the smallest objective change which might justify the patient's subjective symptoms.

Lippincott's definition of neurosis is: a functional nervous disease; an affection of the nervous system occurring without any material change producing it, without inflammation or other structural change which can be detected in the nervous centers. Against this I would like to place the definition of John McCrae in Osler's system, Vol. V, page 86: "There is a tendency to think that neuroses exist without organic lesions, but in the esophagus, as elsewhere, it is well to remember that some lesion may exist which is a point of origin for the stimuli that call forth the symptoms. The lesion may be, often is, quite inconsiderable, and out of proportion to the symptoms it excites, but the effects of treatment will be much better if it be borne in mind that such may exist. In many cases it must be admitted that not the slightest deviation from the normal is to be detected."

It is according to the latter conception that I have written a few words.

* Read before the San Francisco Polyclinic Society, April 3d, 1912.

We are all familiar with the globus hystericus, that bane of many young women, and might feel inclined to treat the patient's assertions with derision, were we not cognizant of the fact that the patient suffers more than many who have a tangible malady. Besides it is well to remember that this sensation is often a forerunner or accompanying manifestation of hydrophobia, lyssophobia, tetanus, strychnine poisoning, neurasthenia, etc. All those who are in the habit of using cocaine in the nose and throat are familiar with the distress which it causes in some patients, who declare that they are choking to death, whereas our knowledge of the action of the drug, as well as ocular inspection convince us that the breathway is wider than before. Possibly the lessened sensibility of the pharyngeal mucosa prevents the patient from feeling that air is passing into the trachea, just as, in an opposite condition, the patient with ozena thinks he is breathing better when his nasal passages have been narrowed by paraffin injections into the turbinates, because he has a heightened sensation of the air passing over the mucosa. Bear in mind, however, that occasionally cocaine, as well as adrenalin, and orthoform have been known to cause an acute edema of the larynx.

Again, we have a patient, generally a female, who complains of pain in the tongue. Nothing can be found to account for it. Perhaps a papilla or two at the root of the tongue is found to be slightly congested or hypertrophied, and a few applications of a mild caustic will dispel the pain. These and a good many similar complaints are simply expressions of nervous hyperesthesia, or hysteria, and can often be overcome by suggestion, a field in which that misnamed cult "Christian science" reaps its biggest harvests. The physician should not hesitate to use psychic therapy; a physician's office is to heal and comfort his patients, and he is justified in using every means conducive to that end. So many of us are prone to disregard the mental side of the maladies we have to deal with; we want our pound of flesh always, and forget the psychic element. Many people by concentrating the mind on an anatomical part can produce in an otherwise normal place a starting point for all kinds of mental and physical discomfort. A case in point: one of my earliest patients was a cook, a robust young man, who discovered his circumvallate papillae one day while looking at his throat in a handmirror. Nothing would convince him that they were normal structures, and he was much distressed with their presence and the train of symptoms which they caused. I touched the papillae a number of times with a mild caustic, and thus succeeded in relieving him of the supposititious pain which he had endured for months. Subsequently I learned that he was a confirmed racetrack patron, and a firm believer in hunches, thus supporting my diagnosis of neurasthenia. A similar condition is that of the patient who has swallowed a fishbone, and swear that it is still sticking in the throat, when a diligent search reveals nothing although it is safe to assume

that a small scratch in the mucosa could be found were it possible to look into all the folds of the pharyngeal mucosa. A swabbing with silver nitrate and an earnest assurance that there is no foreign body present will generally relieve the patient, but woe betide you if you have really overlooked the fishbone. Every animal is much concerned about his air supply, and any accident to the intake causes much alarm.

Examples of similar cases with a purely hysterical or neurotic basis might be cited almost without end. Arrayed against them are those cases in which we can find nothing objective, and still feel that there must be a physical basis for the symptom. A pain in the throat may be due to a stomach disorder, such as hyperchloridia. The eye is the mirror of the soul, but the tongue and throat are the mirror of the stomach, to quote Henri Roger's maxim in a slightly modified form. There may be an ulcer on the back of the soft palate, or in the pharyngeal vault, which may be either syphilitic, diabetic, tubercular, or cancerous. The patient, as usual in such cases, has a strong reflex which precludes the use of posterior rhinoscopy. The modern electric pharyngoscope may render us good in solving some of these mysteries, but I must confess that so far I have not learned to use it to much advantage.

Dry throat is often complained of by people with diabetes or cardiac insufficiency. Obstruction of nasal breathing, or chronic suppurative processes in the nose also give rise to throat dryness. About six months ago a man over 70 came to me for an extreme dryness of the throat which increased after physical exertion. A feel of his radial artery convinced me that he had serious heart trouble, and I advised him to consult an internist. Two months later he dropped dead. About a year ago a woman of some 50 odd years consulted me for a difficulty in swallowing. Something prompted me to feel her pulse, and I found she had a pulse rate of about forty. I referred her to Dr. Lennon, who confirmed my suspicion of bulbar paralysis. Two months later she was feeling somewhat better, and went to the theatre of a Saturday evening. There she became unconscious, and passed away in the Receiving Hospital in the early hours of the following morning.

Some years ago an old lady came to me with the story that she scratched her throat the day before while eating a breadcrust, and felt considerable pain. I could see nothing that day, but on the following day I found an erosion on the left tonsil. These erosions increased in number, the old lady became so weak that I had to visit her at her home. Her whole body soon became covered with blebs, some of them of enormous size, and in two weeks she succumbed to her attack of pemphigus bullosus.

A foul taste in the mouth may be due to caries of the teeth, but is also common in duodenal catarrh, duodenal ulcer, dyspepsia, fecal accumulation, gastric irritation, gangrene of the lung, hysteria, insanity, jaundice, lithemia, liver affections, myxedema, peritonitis, poisoning by arsenic, copper,

mercury, lead, iodine, tartar emetic, etc. And yet we see every once in a while a recipe given in the medical journals for foul taste, as though that were an entity which might be corrected by some local application.

While we have thus spoken of the remote causes, namely the digestive, the vasomotor, the nervous, and the infectious causes which are to be considered, there still remain a large number of referred pains from immediately adjoining parts to be analysed. It is not to be wondered at that we are confronted with all kinds of radiated and reflex pains when we consider the interlacing and intercommunications of the many nerves in the small space represented by the head. Here we have motor, sensory, sympathetic nerves crossing and recrossing one another, each one capable of affecting the other either with a sensation transmitted in a pure or a modified form. Those who wish to get a good anatomical picture of the nerve map of the head are referred to the excellent article of Bliss of Philadelphia in the *Annals of Otology, Rhinology, and Laryngology* for Sept., 1909. The article contains, besides, many excellent remarks concerning the carpentering and plumbing practiced on the cavities of the head by aggressive operators, and is a very good article for those who are inclined to deride conservatism in nose and ear work. To illustrate the difficulty in running a reflex pain down to its real focus, he cites the case of a lady "who had been distressed many months by a peculiar cough. After a long course of fresh air and forced feeding treatment she had been advised to go to Southern California. No one had examined the patient's ears. Her cough was peculiar, and was of a character that should always excite the suspicion of a reflex. It was dry, hacking, ineffective, at times paroxysmal, and with gagging. One could say, too, that this patient had laryngitis, for the vocal cords were pinkish, and the mucosa of the larynx reddened, from the irritation of coughing. This patient's ears were filled with impacted cerumen over a bed of hard, desquamated epithelium. The hearing was not affected to an extent that was noticeable. The very simple matter of clearing the external auditory canals ended the patient's long term of hacking cough, forced feeding, and medication. The 'reflex irritation' had gone over the track of the otic ganglion, inferior maxillary, glosso-pharyngeal, and pneumogastric nerves to the pharynx, larynx, and trachea."

The ear pain complained of when there is trouble in the dental region, such as caries, troublesome dentition, swelling of the gums, is too well known to be dwelt upon. Similar ear complaints are often found when a tonsil is partially inflamed, generally from an encrypted concretion.

The pain felt in the upper incisors after surgery on the turbinals is another familiar example of radiated pain: here we can easily follow the path through the ganglion of Bochdalek which lies at the junction of the anterior and middle dental nerves. The sensation in the tongue when the

chorda tympani is touched, the cough we often incite when in cleansing the ear canal we touch the aural branch pneumogastric are familiar to all. The patient cannot, as a rule, do much towards assisting the physician in the matter of exact locating. It is known that patients refer all pain arising in the throat to a point just below the angle of the jaw, and should one ask a patient to place his finger or a probe on the area of pain in the mouth he is generally very uncertain about it.

To show how misleading conditions in the mouth may be, allow me to recite a case in my experience, which does not really belong here, as there were physical signs in profusion. In relating this case I am not feeding my vanity at the expense of my colleagues, as I was also misled. An elderly gentleman was taken with a great swelling of the tongue, with the attendant dyspnea, dysphagia, pain, etc. A skillful surgeon had been called, a piece of tissue removed and pronounced carcinoma by a competent microscopist. Amputation of the tongue had been decided on, and I was called to determine the condition of the larynx and surrounding parts. The patient had a strong reflex, the tongue was much swollen, and the patient somewhat unruly. Severe and repeated traction was necessary, which I practised with constantly increasing vigor. The result was the rupture of a deep abscess of the tongue, and the gentleman is alive today, and can talk more than ever, which is saying a good deal.

Many other obscure symptoms could be explained were more attention paid to the lingual tonsil. Swain, of New Haven, was amongst the first in this country to appreciate this much neglected part of the oral lymphoid tissue, but most of the men in this part of the world show it but scant consideration.

The moral of the whole thing is an earnest protest against a too intense specialization. There is a growing tendency in this country to adopt the minute specialization in vogue in Germany as against the more comprehensive custom of the Irish school.

Glancing through recent literature one is impressed with the number of articles touching on the inter-relation of the diseases of the contiguous parts of the head, and one is bound to realize that the man who essays a diagnosis of an eye disease without being able to appreciate a nose condition cannot do so conscientiously. One of my first great successes was the realization that a lady who had been treated unsuccessfully for a number of years for an affection of the left eye, must have a cause for her eye condition in her left nostril. I treated a hypertrophy of the left middle turbinate, and the eye got entirely well. But this was before the days of Zieg of Danzig, and his splendid articles. Of course, it is rather appalling to think that a man should keep up in all the work appertaining to eye, ear, nose and throat, when it can be justly said that even a constant reader could not keep up with a small part of the eye literature alone. We have not all the capacity of being omnivorous

readers, nor the phenomenal memory to retain that which we have read. It seems to me that the outcome of the situation will be the birth of the general practitioner in eye, ear, nose and throat diseases, who will in turn refer his patients to the specialist in the particular field which he considers deserving of attention. Perhaps, in time, we shall see the coming of the specialist for the right eye, and the specialist for the left eye, etc.

But, there is also another moral to the story, and that is this: do not concentrate your attention on some little point that you have found, and make it responsible for all sorts of symptoms. Do not think that all uterine troubles are due to eyestrain, nor that varicose ulcers of the legs may be explained by a chronic mastoiditis.

Discussions.

Dr. F. J. S. Conlan: In Dr. Frederick's paper the point that impressed me most was that he places all these patients in the hysterical class. They can not possibly be truly placed in such a category. They are unquestionably neurotic, and why, in them, conditions give rise to symptoms, which in others cause no symptoms, we have not yet discovered. Upon careful examination we will not infrequently find an enlarged papilla at the base of the tongue, an enlarged uvula or an enlarged pharyngeal follicle. Removal, causing a cessation of symptoms can not properly be classed as psycho-therapy.

Dr. Cullen Welty: I am very much interested in what Dr. Frederick has to say, however, my experience with patients who complained of pain from fish bones, bits of meat, scratches and abrasions has been such that I can not agree with him entirely. Furthermore, I have been able to find something that I, at least, attribute to the manifestation of pain. I recall to mind a fish-bone case in which I was unable to locate the foreign body or see the lesion that had been produced by the entrance of same, at the same time I was thoroughly confident that it was present; a few days later an abscess developed which was incised and the fish bone removed. The secret of finding reflex pain is to search most carefully and usually you will be rewarded.

Dr. H. S. Moore: I am reminded of the case of an old lady who called complaining of severe pain in her throat and that she was choking, etc. I found that she had a parrot which she was in the habit of cracking nuts for, she got some of the shells under her palate, this caused a scratch which provoked the reflex choking. I find that these cases of reflex choking are often relieved by cauterizing at the apex of the ant. and post. pillars of the tonsils.

URINARY TRACT INFECTIONS IN WOMEN.*

By DAVID HADDEN, M. D., Oakland.

The general impression among the medical profession is that the infections of the urinary tract in women are of rather infrequent occurrence, and that most of the bladder symptoms recorded in pelvic cases are due to conditions in the adjacent organs, and this impression is emphasized by the scanty treatment of urinary tract conditions in the gynecological text books. Up to a short time ago I have taught quite positively that urinary tract infections were comparatively rare, and that most of

the bladder symptoms in women were reflex, outside of those cases of fermentation of residual urine.

In the out patient department of Cooper Gynecological Clinic from 1901 to 1906, nine hundred and twenty-eight new patients were treated and came under my direct observation. Of these a diagnosis of cystitis was made in thirteen, whereas urinary symptoms were complained of in some three hundred and forty-one, and throughout that time no kidney infection was recorded. There is no doubt that the greater proportion of the cases recording bladder symptoms did get relief after the other pathology was cleared up, but whether that relief was permanent, or only relative, we had little opportunity to follow up. Probably only those cases without definite infection and with symptoms due to residual urine and putrefactive organisms did have permanent relief, though it is likely that in many cases the urinary tract infection did finally subside, due to the improved general condition of the patient, the result of the corrected pathology.

This paper is based on the study of some thirty cases of urinary tract infection where the diagnosis of the infection has been confirmed by bacteriological examination of the urine. These cases have come under my observation during the last eighteen months in my own private practise and form a much larger proportion than the clinical records mentioned above. It is hardly reasonable to imagine that infections of this character are more frequent now than formerly, but rather we are justified in concluding that the use of vaccines has led to more frequent bacteriological examination of the urine and increased interest in finding such conditions.

In the *London Clinical Journal* of November 13, 1907, C. B. Lockwood published a lecture on "Genito-urinary Infections, Especially the B. Coli Communis," it being a report of some acute urinary tract infections and a summary of the treatment, which consisted of urinary antiseptics, and bladder irrigations of silver nitrate. He states that vaccine treatment was on trial with him then.

In the same journal, February 2, 1910, Harry Fenwick published a lecture on "Diseases Simulating Cystitis in the Female," in which he quotes three types of these diseases:

1st—Hematogenous infection of the kidney due to b. coli communis; this infection he considers the most common and least virulent variety, frequently following influenza, and more common in women because of the greater prevalence of movable kidney causing back pressure. Most of these cases are acute, but the severe infections needing operation are rare. He favors vaccine as being of value only in the first stages.

2nd—Kidney tuberculosis in which he favors tuberculin.

3rd—Ureteritis—due to uterine "sag." Of these cases he reports six, all involving the left ureter (but why the left only he does not know), believing the condition to be a clinical entity not previously recognized. The symptoms are those of severe bladder distress and pain, with tenderness on the left side of the vagina, but without any

* Read before Alameda County Association, October 22, 1912.

urinary findings, though no bacteriological examinations are reported. All six cases were cured by operation to suspend the uterus.

His premises are that "curable cystitis in the female is tantamount to infection from below by way of the urethra. Obstinate cystitis is nearly always due to infection from above by the ureter."

The majority of the urinary tract infections are associated with ptosis of bladder or kidney, or both, and this shows that in women these infections depend most frequently on improper drainage. In the series of cases on which this paper is based are not included those acute infections that are easy to diagnose by the symptoms of fever, frequent and painful urination with pus in the urine, tenderness over the kidney, such as occur with acute infectious diseases, and often follow too frequent and careless catheterization. Such cases are usually self-evident and are not associated with ptosis, and consequently respond to the urinary antiseptics and systemic treatment. Nor are included those patients with extreme saggings of the bladder as represented by pronounced cystocele and prolapse. The cases here quoted are of the border line type where the degree of ptosis, while sufficient, may be unrecognized upon casual examination or where the diagnosis is obscured by other pathology—and yet in order to get a complete cure we have to correct the defects.

With the more thorough understanding of vaccines I prefer to correct the infection and follow with the necessary operative procedures, because thus the results from operation are more prompt. However, if the sagging of the bladder is marked and the residual urine excessive we must operate early. Vaccines will not cure an abscess unless the pus is liberated and the analogy holds here.

I quote the following cases as good examples of the type of symptoms which led to my making a routine examination of the urine bacteriologically, and which gradually forced me to the conclusion that vaccines and operative procedure must be combined:

Mrs. B., aged 60. Home up the coast and away from medical help. Complaints of having had bladder trouble for many years; treated twenty years ago by irrigations over a long period, but received little help. During the last few years symptoms of frequent and painful urination, with occasional blood in the urine, have been marked. Examination shows uterus small, atrophic, retroverted; some cystocele. Cystoscope shows very much congested bladder with bleeding points around the beginning of the urethra and several areas just outside trigone covered with blood clots. Considerable pouching of posterior wall. Urine cloudy, showing albumin and pus with some blood, culture showed colon bacillus infection. Treatment consisted of urinary antiseptics, sedatives and vaccines. Improvement was very slow. She now reports that though she feels much better there are still intervals when symptoms recur, and she suffers discomfort most of the time.

No effort was made to correct the pelvic conditions on account of the patient's age. I did not appreciate then that the sagging bladder was so intimately associated with these infections because there were no symptoms directly depending on the pelvic pathology. In a like case now I should advise some operative procedure, or at least make an attempt to hold up the bladder with a pessary in order to prove the premises in the case, and if proven, operate.

Mrs. H., age 38 years. No pregnancies, supra-vaginal hysterectomy by prominent surgeon six years ago for inflammation, left ovary not removed. In doctor's hands for the last three years for bladder trouble following removal of caruncle. Examinations showed considerable congestion of the vulva, urethral orifice excessively dilated; cervix enlarged and cystic; left ovary low down, tender, some sagging of anterior vaginal wall. Urine cloudy, alkaline, high sp. gr., trace albumin, some blood; culture shows pure colon. Right kidney tender and enlarged. No cystoscopic examination made on account of acute state of bladder, and later the clearing up of the urine removed the necessity thereof. Treatment consisted of local applications to relieve the congestion in the pelvis with urinary antiseptics and regulation of diet. An autogenous vaccine to combat infection of urinary tract was also used.

In three weeks patient was very much improved. Quantity of urine normal; sp. gr. 1020; clear, no albumin; still slightly alkaline, no blood since beginning the vaccine. After three months of treatment patient felt "fine." Urine culture was negative, local pelvic condition very much improved.

During the next six months there were periods when the urine was alkaline, causing a recurrence of the irritation of the vulva and more frequent urination. I referred the patient to an internist to see if he could find any systemic condition to account for the periods of irritation, as I did not feel that the slight sagging of the bladder was sufficient to account for much residual urine. Nothing physically wrong was found, and the patient a year later still continues to have occasional recurrence of vesical irritation.

In this case I am certain that the removal of the cervix and ovary, and giving of better support to the bladder would put the patient in good health, but a history of most stormy convalescence following both previous operations has prevented encouraging further operative procedures. With over-exertion the pelvic congestion is increased, and the sagging of the bladder exaggerated, preventing complete emptying and favoring alteration in reaction, and consequently adding to the irritation. The condition of the patient when first seen was aggravated by the too radical bladder treatment instituted to cure a supposed cystitis, the kidney infection being unrecognized.

The two following histories are typical examples of the type of case with which this paper deals:

Mrs. B., aged 55. One child, menstruation ceased two years ago. Present ill health dates from fall astride a bath-tub five months ago. Had cystitis twenty years before. The coccyx had been removed and the tissue around the perineum incised by a surgeon to whom she had been referred because of pain upon sitting down, and frequent urination. The operation exaggerated rather than improved these symptoms.

She complains of frequent desire to urinate, especially when seated; when lying on back urination frequency is increased, but can lie face downward with comparative comfort; feels well, but is extremely nervous and depressed. Pelvic examination shows mucous membrane pale and atrophic; perineum shows scar of repair, but muscular support is poor; considerable irritation around urethral orifice and vestibule; small cystocele; uterus rather low, atrophic; bladder tender. Cystoscope shows bladder congested, otherwise negative, except for pouching of posterior wall. Urine cloudy, alkaline; sp. gr. 1010; trace albumin, culture shows colon and proteus.

Treatment consisted of vaccine and urinary antiseptics. A small pessary was placed to raise the bladder. In three weeks the urine was perfectly

normal and bacteriological examination negative. The pessary corrected all other symptoms, but three weeks later had to be removed on account of irritation to senile mucous membrane. The discomfort in sitting returned immediately, though there was less frequency of urination than before the infection of the urinary tract had been corrected.

Two months later the patient came, desiring operation, realizing that the majority of her symptoms were due to the bladder ptosis. The operation consisted of an anterior colporrhaphy with perineorrhaphy and abdominal suspension of the uterus. This accomplished permanently what the pessary had temporarily.

Mrs. A. B., aged 51. Has had one child; ceased menstruation at thirty-five years. Had just come from college hospital where gynecologist removed a urethral caruncle without any relief of symptoms. Complaints of frequent urination, burning and pain on voiding, backache and a sense of prolapse.

Examination shows considerable irritation around urethra from where caruncle had been removed. Vulva and inside of buttocks show pruritis, probably from sugar in urine; small cystocele, uterus atrophic, although in normal position. Patient had attempted to empty bladder four times in forty minutes, but upon catheterization gives six ounces of residual urine, bladder wall shutting down on catheter just as if a stone were present.

Chemical examination shows albumin, no sugar, culture, an acid forming strepto-bacillus. Cystoscope shows a marked trabeculation and congestion of the bladder, a few bleeding spots, no foreign body but considerable pouching of the posterior wall.

A further report from medical clinic where patient had been under treatment confirmed diagnosis of diabetic mellitus.

Treatment consisted of urinary antiseptics and vaccine, vaginal canal being too contracted to use a pessary as a test of condition. Vaccine finally cured the infection, and thus lessened the frequency of urination, the patient being able to retain urine two hours.

On account of the diabetes an operation was discouraged, but the patient's discomfort caused me finally to do an anterior colporrhaphy and perineorrhaphy which healed by first intention and resulted in a great improvement in the local symptoms. The general physical condition was improved.

The following case shows that a mechanical interference with the bladder even if unassociated with ptosis favors the development of infection on account of inability to empty bladder:

Miss O. H., aged 25, appendix operation at 13 years of age, when cysts of right ovary were punctured. Removal of right ovary in Orient three years ago. Complaints of irritation in bladder and severe pain in right side when menstruating.

Examination shows uterus forward, movable, not enlarged; appendages on left side somewhat thickened; small sausage shaped tender mass on right side in location of tube; kidneys in position. Urine shows trace of albumin, no sugar, sp. gr. 1020. Culture shows colon and streptococcus.

On account of the severe pain during menstruation an operation was performed, when uterus was found forward, closely adherent to bladder; left cystic ovary, and intestines adherent to uterus posteriorly. A broad band of omentum was adherent to parietal peritoneum in median line and inguinal region on right side. Appendix absent. Left tube free but showing nodular inflammation. The right ovary and major portion of the tube absent. The remaining proximal end of the tube was coiled upon itself, adherent to uterus, with ostium obliterated.

The left tube was removed; the cystic portion of

ovary resected; stump of right tube resected; band of omentum removed; the adhesion between the bladder and uterus was separated; 200 c. c. of oleum telephosos left in pelvis and patient was kept in Fowler position in hopes of preventing recurrence of adhesions. Convalescence mild and menstruation at the following periods painless. Bladder symptoms practically relieved, though culture was still positive.

The infection of the urinary tract is here associated with a bladder whose function has been interfered with by the adhesions in the pelvis, especially those of the bladder to the uterus. The conditions found here offer to my mind one of the strongest objections to any operation for a retro-displacement which involves a plication of the round ligaments between the bladder and the uterus, as does the Coffey, for the development of adhesions is bound to interfere with the bladder functions, favoring infection.

The failure to recognize such conditions as these mentioned, and the difficulty of diagnosing them is due to the fact that in many chronic infections the urine findings vary chemically and microscopically from time to time. As we have seen albumin and pus are not always present, though persistent examinations will finally be positive. The frequent presence of casts tends to an incorrect diagnosis of nephritis.

I have found that many cases of pelvic pathology are corrected, but the urinary infection is overlooked, and on the other hand some cases of urinary infection are diagnosed but the causative factor of the mechanical defect goes unrecognized, and in neither case is the patient cured.

A study of these patients has forced me to the following conclusions:

That urinary tract infections in women are by no means uncommon.

That they are usually associated with improper drainage on account of ptosis in some part of the tract or a relative ptosis produced by the displacement of an adjacent organ.

The infection must occur in many cases autogenously, as mechanical interference can be frequently excluded.

That any operation that weakens the bladder supports, or which may produce adhesions between the bladder and uterus, such as might result from a Coffey, or the newer Willis, round ligament shortening gives a favorable condition for a chronic urosepsis and consequently offers a serious objection to any anterior plication operation.

That in many cases a bacteriological examination only will give the diagnosis, as albumin and pus are variable constituents.

That bacteriological examination must be made from a catheterized specimen when no urinary antiseptics are present in the urine.

That the presence of casts is not always indicative of nephritis but frequently associated with infections and disappear when that infection is cured.

That when vaccine treatment has cleared up or improved the infection, operative work is necessary to correct the sag and cure the patient's

symptom habit, as well as to prevent further auto-infection.

In some cases operative work alone will increase the patient's resistance and result in a cure of the infection.

GASTROTOMY WITH REMOVAL OF 1149 FOREIGN BODIES. RECOVERY.

By A. C. MATTHEWS, A. M., M. D., Napa State Hospital.

The following case is reported because of its unusual interest, considering the number of articles removed from the stomach at operation together with a complete recovery, notwithstanding the marked contusion and ulceration of the stomach walls as disclosed at operation. To those who are dealing with the insane it is not an uncommon thing to hear that some patient has been eating some foreign matter or has swallowed some harmless and indigestible substances as buttons, strings, rags, hair, etc., but rarely do we hear of them swallowing bodies which may give rise to more or less serious trouble as pins, needles, spoons, etc. A peculiar fact observed among the insane is that they can swallow all sorts of articles and apparently suffer little or no inconvenience for long periods of time. This is not only apparent, but actually true and what is the explanation? It is well known by alienists that many of the insane, especially those in a state of marked excitement or with more or less dementia, sustain severe injuries, bad lacerations and wounds, with very little or no complaint. The reason is simple. Their sensibilities are blunted, due to the disordered functioning of the receiving apparatus—the central nervous system—or to a dulling of the peripheral sensory nervous mechanism or a combination of the two. Consequently there is less pain, less shock, less discomfort than we would find in a normal individual. We occasionally hear of operations upon the stomach for the removal of spoons, false teeth, and other objects among these individuals, but in dealing with the insane for many years I have not heard nor read of a case presenting the interesting features shown here and resulting in recovery.

Doctors Vandervirt and Mills* report finding 1,446 articles in a stomach at necropsy. In this case practically no digestive disturbances were manifest during the life of the individual. They also refer to a case by Bell of Montreal in which a hair-ball removed from the stomach formed a complete cast of the stomach and duodenum.

The patient, aged thirty-one, was admitted to the Napa State Hospital in March, 1912. A paternal uncle was insane, the father and sister are eccentric. She was born in San Francisco and spent all her life in California, except one year and eight months in Montana. She was healthy as a child, graduated from grammar school, and spent one year in high school. Always ambitious, desiring to excel in her studies, which she usually did. Was considered exceptionally bright. Began study of music at age of ten and became an accomplished pianist and violinist. Married at age of twenty-five and has two children.

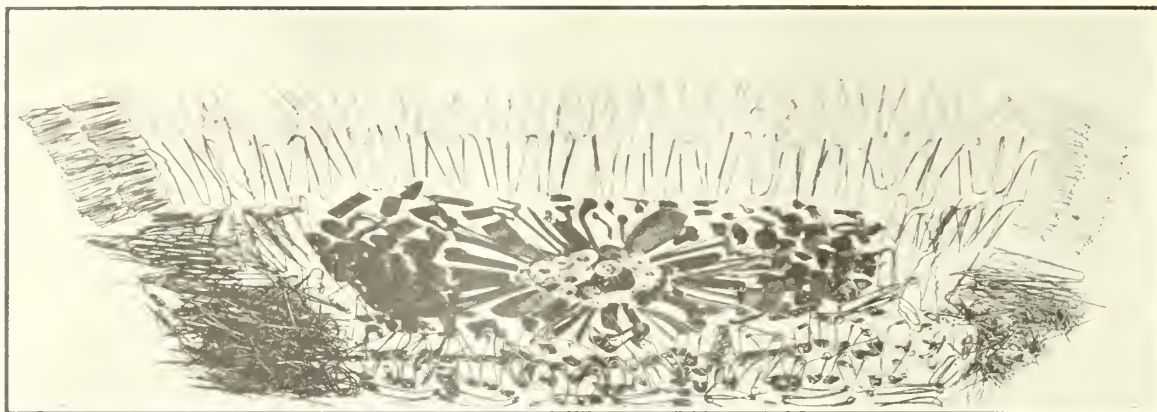
Psychosis: Menstruation was established at age

of fourteen. She has always been somewhat nervous and despondent during the menstrual periods. In school she was restless and quite unstrung at examination times because of her desire to excel. However, there appears to have been no actual mental outbreak until March, 1908, when she became restless, sleepless and despondent. She constantly fretted over trifles, had notions, and was unable to care for herself. She continued to be upset through May, June and July. Improvement was noted in August and she was pronounced cured in September of the same year—duration, six or seven months. She continued healthy and cared for her household duties until September, 1911, when she became nervous and depressed over the illness of her two-year-old child. She was pregnant at this time and her condition grew worse after childbirth in October, 1911. Three days before admission she took fifty-seven grains of corrosive sublimate with suicidal intent. At the hospital she was restless, depressed, and tearful, worried much over her absence from home and children, feared she would become a raving maniac and have to spend all her days here. She complained constantly of impulsive thoughts coming to her and an inner tension when it seemed she must scream and rave. Diagnosis—mixed type of manic-depressive insanity.

Discovery of tumor in stomach and operation: May 17th patient began to complain of abdominal distress and then upon close interrogation she hesitatingly admitted that she had been swallowing various articles for the past two months. A few days before this it was reported that patient had swallowed a pin; she finally admitted it, but positively denied she had taken anything else. After confession of her deeds an examination showed a tumorous mass apparently within the stomach, slightly grating in character on manipulation, and seemingly about five or six inches long. There was slight discomfort on gentle pressure. I operated upon the case the same day at 3:10 p. m., being assisted by Doctors Porter and Geraldson of the hospital staff. When the stomach was exposed in the median line it was found that the tumor mass occupied the right two-thirds of the stomach and extended into the duodenum for about four inches. The stomach was opened by an incision about two inches long, on the anterior surface just a little to the right of a mid-point between fundus and pylorus. By means of an electric light introduced through the opening an effort was made to extract the pieces piecemeal by means of tissue forceps. This was a slow, extremely difficult process, and finally had to be abandoned after two hours' work. This necessitated enlarging the incision to the extent of about five inches in order to allow introduction of the hand. Even with this increased advantage the removal was very tedious owing to the close manner in which the objects were interlaced. The gastric mucosa and musculature were badly damaged, especially in the region of the mass. Besides the irritation and ulcerations caused by the foreign matter, the walls were considerably contused during the removal process. The muscular walls throughout the neighborhood of the mass were friable, and even the serous coat appeared less strong than normal. The mucosa and muscular walls were approximated separately by means of chronic catgut and the outer coat with silk. Duration of operation, three hours and ten minutes. The following is a list of articles removed:

- 180 Wire Hair Pins.
- 55 Open Safety Pins.
- 14 Closed Safety Pins.
- 21 Broken Safety Pins.
- 5 Prune Pits.

* Jr. A. M. A. January 21, 1911.



- 23 Buttons.
- 3 Collar Buttons.
- 13 Nails.
- 3 Screws.
- 2 Screw Eyes.
- 4 Tacks.
- 1 Staple.
- 5 Parts of Teaspoon.
- 425 Broken Pieces of Hairpins and Wire.
- 1 Piece of Thread.
- 104 Unclassified Odds and Ends, mostly metal.
- 9 Parts of Combs.
- 280 Small Pins.
- 1 Piece of String.

Total, 1149.

Weight, 1 lb. 2 oz.

May 17th, 1912. The operation was completed at 6:20 p. m. Given saline solution per rectum (Murphy drop-method). At 7:40 p. m. morphine $\frac{1}{4}$ gr. with atropine. Vomited at 8:00 p. m.; character, bloody. Stomach was not washed out after operation. Desired to avoid all unnecessary irritation. Given teaspoonful of warm water by mouth during the night to relieve marked thirst. Slept at intervals.

May 18th, 1912. Morphine $\frac{1}{4}$ gr. at 2:30 a. m. Murphy injection continued during the day. Small quantities of warm water during the day to relieve thirst. Restless at intervals, voided urine voluntarily. Peptonized rectal feeding rejected. It was then diluted and introduced by Murphy method. Slept at intervals. At 6:00 a. m., temperature 100.8, pulse 114, respiration 20. At 8:00 p. m., temperature 103.6 (highest), pulse 134, respiration 28. Slight delirium at time of high temperature. Abdominal distension (gas) relieved by rectal tube.

May 19th, 1912. At 8:30 a. m., temperature 99.2, pulse 100, respiration 18. Slept at intervals last night. Restless and in pain at 4:15 a. m. (morphine $\frac{1}{4}$ gr.). Kept quietly in dorsal position since operation. Rectal feeding every six hours. Bowel movement (somewhat hemorrhagic). Some gas pains during the day relieved by tube. More comfortable to-day.

May 26th, 1912. Since last note patient has been steadily improving. Temperature, pulse and respiration have been normal. She is now being fed entirely by mouth with no discomfort. Abdominal incision was inspected yesterday and sutures removed. No signs of infection or peritonitis.

June 5th, 1912. Patient is now up and about the ward and, to all appearances, is in her usual good physical condition.

THE MILK SUPPLY OF SAN FRANCISCO AND ITS BACTERIAL CONTENT.

By E. E. HUTSHING, Ph. C., San Francisco, Bacteriologist with S. F. Board of Health.

Of the various classes of milk, shippers, wagon, creamery, depot, etc., of which samples are taken by the Health Department's inspectors to be submitted to its laboratories for examination, only the first named is regularly put through the routine bacteriological examination. By shipper's milk is meant that which comes direct from the source of supply, namely, the dairy.

At various, but irregular periods throughout each month, samples are taken as the shipments arrive at the main points of entry to the city (Third and Townsend streets, and the Market street (Union) Ferry). The "raids" occur either at an early morning hour (about 7 a. m.) or in the evening (about 7 p. m.), as it is at these times that practically the whole city supply reaches here.

The low temperature of the early morning and evening hours at which the samples are taken is most conducive towards keeping the bacterial content at a point that will give the laboratory examination the diagnostic value it aims at, that is, the condition of the milk at the time of its arrival in the city.

There are about one hundred and thirty dairies supplying milk to this city. All of these lie within a radius of about one hundred miles of San Francisco. As may be seen from the dairy location map, the majority of these supply sources lies within thirty-five miles of the city. The cattle supplying the product arriving here about 7 a. m. are milked about 3 a. m., that which arrives in the evening, comes from the milking done about 3 p. m.

METEOROLOGICAL CHART FOR S. F.
July, 1911—July, 1912.

	Temperature			Humidity		Rain Fall in inches.
	Max.	Min.	Avg.	5 A. M.	5 P. M.	
July	61.9	50.9	56.4	92.5	79.1	0.00
August	62.0	51.1	56.5	92.2	78.2	0.00
Sept.	66.8	53.3	59.9	87.1	68.4	0.00
Oct.	68.5	53.3	60.9	82.5	61.0	0.28
Nov.	65.1	49.5	57.3	76.1	53.1	0.60
Dec.	57.6	45.8	51.8	72.0	57.5	2.54
Jan.	56.5	47.1	51.8	86.9	74.0	2.47
Febr.	60.6	48.7	54.8	80.1	68.8	0.41
Mar.	57.2	47.5	52.2	76.8	63.1	4.10
April	58.1	47.5	52.7	79.9	63.8	1.38
May	63.3	51.0	57.2	84.3	65.5	1.47
June	67.5	53.2	60.4	82.2	66.1	0.81

The official temperature and humidity records for San Francisco, during the past twelve months, hold good for the greater part of the dairy region, especially Marin and San Mateo counties. The humidity is influenced principally by the fogs which for the mornings and evenings throughout the greater part of the year envelop most of the counties bordering on San Francisco Bay. The most striking fact about the temperature is its comparative evenness throughout the year. The winter fogs are principally tule fogs, but the heavy mists present during most of the year are the clean, cool ocean fogs direct from off the Pacific.

Thus, the time of milking, the comparatively short distance from this city, with the ready and rapid means of transit, the cool and especially even temperature, are some of the important causes going towards giving this class of milk the low bacterial count that it as a whole shows.

The standard set by this city's Board of Health for non-certified milk is 500,000 bacteria per c.c. This standard holds throughout the year. Chart II shows that but very few samples exceed this figure. From July, 1908, to July, 1909, 80% came within this standard; from 1909 to 1910, 93%; from 1910 to 1911, 94%; from 1911 to 1912, 97%. I believe that a bacterial standard of 200,000 bacteria per c.c. should replace the present one. Two hundred thousand bacteria per c.c. is a figure that all the dairies could come within with but little effort. It is a figure that the majority continually come within even now; in fact if we take a standard of 100,000 bacteria per c.c. we find that the majority of samples are within even this figure. From July, 1908, to July, 1909, the samples below 100,000 bacteria per c.c. were 62%; from 1909 to 1910, 81%; from 1910 to 1911, 80%; and from 1911 to 1912, 82%.

CHART II.

Bacteriologic Examination of Milk Samples from Shippers. Taken from Cars and Boats upon Arrival in San Francisco.

Bacteria per c.c. in thousands.	1908-1909 %	1909-1910 %	1910-1911 %	1911-1912 %
Below 10	11.3	10.1	9.6	17.0
10 to 50	37.0	55.3	47.0	47.5
50 to 100	14.0	15.2	23.2	18.2
100 to 500	17.4	13.0	14.2	14.3
500 to 1,000	7.0	4.0	5.1	2.3
1,000 to 10,000 ..	9.3	2.4	0.9	0.7
Over 10,000	4.0	0.0	0.0	0.0
	100.0	100.0	100.0	100.0

There are a few other seaboard cities, Eastern and Western, that show almost as low a count for this class of milk as given in charts II and III, but in all cases their low count is obtained only after the rigid enforcement of icing the milk from the time it is drawn until it practically reaches the consumer. None of the milk belonging to this class, arriving in San Francisco, has been iced either at the dairy or during transit. This expensive method of obtaining a bacteriologically clean milk has been found unnecessary with us, due no doubt to the various local and climatic conditions mentioned above; for were it not for these, icing would be no doubt as necessary with us as it is practically everywhere else.

CHART III.

Bacteriologic Examination of Milk Samples from Shippers. Taken from Cars and Boats upon Arrival in San Francisco. By months 1911-1912.

Months	Bacteria per c.c. expressed in thousands.					
	Below 10.....	10 to 50.....	50 to 100.....	100 to 500.....	500 to 1,000.....	1,000 to 10,000.....
July	4.9	45.5	19.8	23.9	5.9	0.0
August	1.3	55.0	20.2	16.0	7.5	0.0
September	2.5	48.0	20.0	25.2	4.3	0.0
October	0.0	37.5	28.5	28.8	5.2	0.0
November	0.9	49.5	32.0	16.5	0.9	0.0
December	5.3	63.0	26.4	5.3	0.0	0.0
January	1.9	56.7	31.5	9.0	0.9	0.0
February	0.0	54.3	29.4	12.8	3.5	0.0
March	32.3	44.0	10.5	13.2	0.0	0.0
April	32.2	39.2	10.3	13.1	3.2	3.0
May	30.3	47.2	8.0	12.0	2.0	0.5
June	18.0	53.0	13.0	15.0	0.8	0.2

What has also been of great importance in obtaining the low bacterial count, is the score card standard set by the city board of health, for all dairies supplying this market with their products. The board has at all times at least two inspectors (veterinarians) among the dairies enforcing this score-card standard for sanitary conditions of buildings and equipment, health of employees and stock. Failure to reach the required percentage of cleanliness, etc., demanded, results in the refusal of entry into this city of the products of those dairies.

On the morning or evening of a milk raid, the samples are collected by inspectors with the utmost care and immediately placed in specially prepared sterile glass containers. The milk in the can is first thoroughly agitated with sterile mixers, and from each is taken 60 c.c. by means of a sterile dipper (a separate dipper being part of the container for each bottle), and this is immediately poured into the glass jar. The jar is labeled with the dairy number, and with nine like containers is placed in a specially prepared ice-box. At each raid anywhere from 30 to 80 separate samples are taken, and within fifteen minutes after the last one is obtained, they are delivered at the laboratory. If from a night raid, the milk is not examined until the following morning, but being very well iced, and besides this placed in a refrigerator, we have found that no noticeable increase in the count takes place through the delay in examination. The samples arriving in the morning are of course examined at once.

Until four months ago, the routine examination of the milk, bacteriologically, consisted in plate counts on nutrient 2% agar (plus 1.5%). Dilutions of the milk were made 1 to 100 and 1 to 10,000, and incubated 48 hours at 37 C. Through a change in the city administration and a consequent partial change in the laboratory force, this simple plating method was considered to be of too little value for the purpose of keeping a check on the sanitary conditions of the dairies and the handling of the milk. Dissatisfaction with this method that told but part of the story only, led to the adoption of the direct microscopic examination of the centrifuged sediment.

A modified Stewart, disk-centrifuge, which had been used for a short time and discarded by those in charge during a previous administration, was resurrected. It had been originally used when the laboratory was situated in another building, where both alternating and direct currents were available, but the present quarters are provided with but one current unsuitable for the machine. The difficulty has been overcome by adjusting the aluminum disk, after very slight alteration in the pivot hole, to a high-power Purdy centrifuge. The result is most satisfactory.

Our routine method for preparing the milk sediment for microscopic examination is as follows: After shaking the bottle containing the milk twenty-five times, 2 c.c. of the fluid is withdrawn by means of a sterile pipette and delivered into one of the small glass tubes which has previously been closed at one end with a rubber stopper. We have

laboratory and with a grease-pencil each one is marked with a number corresponding with the sample number. A circle having an area of four square centimeters has been cut into the table. A slide is then placed over it, and in the center of the circle appearing through the slide is placed a drop of distilled water.

The cream that has gathered at the open end of the vial is removed with a platinum loop and the milk, in order not to disturb the sediment, is carefully poured into a waste jar. The rubber stopper is then removed, and the sediment on it is thoroughly smeared over the four centimeters; the drop of water allowing a thin even smear to be made. It is usually necessary to spread out the drop that forms on removing the stopper from the slide, by means of a platinum needle.

The smears are allowed to dry (about 3 to 5 minutes). To fix the smears and at the same time remove most of the butter fat, the slides are placed for five minutes in dishes containing equal parts ether and alcohol. On removal they are quickly drained and spread out in order that the solvent may evaporate. They are then stained.

After trying the various recommended stains, we have made up the following one which is most satisfactory. Saturated alcoholic sol. of fuchsin, 2 drops; sat. alcoholic sol. methylene blue, 20 drops; distilled water to make 15 c.c. The stain is allowed to remain on the films for three minutes, then gently washed off with tap water, drained and dried between filter-paper.

The microscopic examinations of the films are made with a (Bausch-Lomb) twelfth-inch immersion objective and number 10 eye-piece. The bacteria appear blue on a light pink background. The "pus-cells,"—nucleus blue, protoplasm dark pink. The picture is very clear and quite beautiful.

Each bacterium per field is considered as representing a colony on a one-in-ten-thousand dilution plate. As will be seen from chart III, the colonies in such a dilution plate are usually few, and as the bacteria per microscopic field are correspondingly so, a quick survey of at least a dozen fields is easily made, and from this an average taken. This number multiplied by ten thousand gives the bacteria per c.c. in the original sample.

We have checked our microscopic results against two hundred and fifty plates of the ten thousand dilution, and have found them to agree close enough to continue the microscopic method. Neither method is perfect, but only approximate. With the plate method many bacteria, in spite of thorough shaking of the milk, remain clumped and grow as one colony; many are killed by the temperature at which the agar is poured, and many no doubt fail to grow at incubator temperature (37 C.); and again, after 48 hours' incubation, a "spreader" may obscure many colonies. With the microscopic method not all of the bacteria are thrown down, even after ten minutes centrifuging; some are washed out of the sediment in pouring out the milk from the vial, and some no doubt remain on the stopper in spite of careful spreading



found that it is sufficient to place a stopper at but one end of the tube instead of at both ends, as usually done. The tubes are placed in the disk after it is placed in the centrifuge, since the placing of the twenty vials before its adjustment often leads to a loss of part of the sample. The cover is then placed on the disk and the centrifuge run for ten minutes at its maximum speed of about 4,500 revolutions per minute.

The tubes are then removed from the disk in the rotation in which they had been placed in it. As many glass slides as there are samples are spread out on a table in a dust-free part of the

on to the slide. But with the latter method we get our count the same day as the samples are received, instead of waiting 48 hours, as when plates are used, also there is a great saving of material (media) and time in cleaning glassware; but most important, we get an idea, without the further cultural work that is necessary with the plate method, as to the kinds of bacteria we are dealing with and to the number of "pus-cells" present.

As the diagnostic value given by the number of leukocytes present in milk is still being questioned by the best authorities, but little attention has been paid to that part of our microscopic pictures. Every sediment contains of course some cells. The average number per field being about five, but two or three times this number we find to be not uncommon.

We have rarely found streptococci in abundance. In looking over a dozen fields of almost any sample, one or two short chains are found. In the samples where they appeared in large numbers, and where they were the predominating type of bacterium, they proved of great significance. For example, in three cases in which the samples showed numerous streptococci, and an inspector was immediately dispatched to the dairy from which the milk had come, the following conditions were found to exist: In one instance one of the herd had the "forward udders and bag affected by a black foreign growth, which split and bled on pressure." Another case showed cows of a herd affected with diseased udders. A third case was due to dehorning. This operation had been very recently done. "Suppuration and necrosis of horn butts were found to exist and large quantities of pus were present about the heads of several cows. By rubbing their heads against one another's body the infectious material and pus was so distributed that it was an easy matter for it to get into the milk." In one case investigated because of streptococci appearing in the milk, it was found that the milk cans returned to the city were dirty and of strong odor, and were being refilled without being first given a thorough cleansing.

Though most cities deem it worth their while to make bacteriological examinations of both creamery and wagon milk, we have considered examinations from these sources to be of too little significance to repay us for the time they would consume, believing the control of the source of supply to be of most value. The sanitary conditions of the local creameries and milk depots, etc., are constantly under inspection. Their water supply being the same as is furnished to the city in general, is thus regularly examined bacteriologically as well as chemically. The health of their employees is under the control of the board's medical inspectors.

There is at present pending an agreement between the Milk Dealers' Association and the Milk Drivers' Union, regarding a daylight delivery (7 a. m. to 5 p. m.) only. Should this agreement go into effect, it is proposed by the dealers to pasteurize all of the general supply. It is expected that the agreement will go into effect at the latest, January 1st, 1913.

Whenever the milk supply of a city is pasteurized, the bacteriological examination and the general control of the supply becomes more imperative than ever before. To explain why this should be so, it will be necessary that the pros and cons of pasteurization be stated.

The principal advantages to be gained by pasteurization are: A great reduction in the number of bacteria. This leads to the following results: Protection from infection with diseases usually transmitted by milk; reduction of the infantile death rate; the enhancing of the keeping quality of the milk.

From the foregoing it would seem that the general adoption of pasteurization could only lead to good results. And so it would if the following objections to the method were fully recognized by the health department.

Pasteurized milk instead of souring usually putrefies. This is due to the fact that the lactic acid bacteria are destroyed in the process, then giving free rein to the multiplication of undesirable, putrefactive, sporebearing organisms that are not killed, and which had before pasteurization been held in check by the harmless lactic-acid producers.

Another objection is that pasteurization is inadequate, for where before subjecting the milk to the process, it may show a count of 1,000,000 per c.c., the destruction of all the bacteria might still render the product unfit for consumption, as the toxins and products of their metabolism are still present. This is especially dangerous where infants and invalids are concerned. It is claimed by some authorities that undesirable changes may occur by heating which results in making the milk less digestible, particularly in the case of infants. The most serious objections are those relating to the possible change in sanitary conditions in the handling of milk before and after pasteurization, and of the repasteurization of old milk. Carelessness in handling after pasteurization may result in serious contamination of the product. "Pasteurization will put back improvements on the source of supply and encourage dirty habits, the farmer understanding that it is not necessary to be particular, since the dirt that gets in is going to be cooked and made harmless." Another important point against pasteurization is the false security given by the label, "Pasteurized milk," on the bottle, for the age and the subsequent handling of the product are not guaranteed by the label.

Now the above objections are most weighty, but each and every one of them, with the exception of the question of the digestibility of pasteurized milk, and which objection has practically been settled in the negative, are up to the health authorities. The general adoption of pasteurization would necessitate more rigid field and laboratory control of the milk supply than has been in vogue heretofore. Also the enforcement of the best method of pasteurization ("holder" process—62.8° C.). With such control of the product, all of the value of a pasteurized milk supply would be gained and none of its objections realized.

POST OPERATIVE ACIDOSIS.*

By CHARLES G. LEVISON, M. D., San Francisco.

In former years when chloroform was in general use as an anesthetic, conditions at that time called uremia, secondary shock and latent sepsis were frequently observed. With the introduction of ether, however, these conditions have been less frequently seen. The untoward effects of all anesthetics during the past 10 years have been steadily growing less as a result of the following factors:

1. The large reduction in the quantity of the anesthetic consumed on account of the drop method plus nitrous oxid, morphine, scopolamin and novocain.

2. Shorter duration of operation.

3. A shorter period of preliminary starvation and purgation.

The subject of post-operative or post-anesthetic acidosis was unknown to me up to ten years ago and it was called to my attention by the following experience:

A healthy unmarried girl 23 years of age was operated upon under chloroform anesthesia, for a small ovarian cyst; the operation was of short duration and was without incident; she progressed satisfactorily for two days when she began to grow very restless; vomiting was persistent; the urine was profuse and practically normal; the examination for albumin, sugar and urea was negative. The patient did not produce a good impression but nothing definite was observed.

After numerous consultations a diagnosis of uremia was made despite the fact that the urinary findings were not suggestive of this condition. She developed a stupor from which she was aroused with difficulty and on the fourth day she died in convulsions; the temperature was normal.

The autopsy revealed a complete healing of the field of operation with no evidence of peritoneal irritation. The liver was enlarged and nutmeg in appearance, signifying fatty degeneration. Microscopical examination of the liver showed fatty degeneration of the periphery of the lobules with hyaline degeneration of the cells around the central vessels. While the microscopical examination of the kidneys showed a certain amount of change in the parenchyma, it did not show enough to account for the outcome. The real cause of death remained "in dubio" until my attention was attracted to an article by Brewer on acetone-mia following a simple operation for appendicitis

under chloroform anesthesia; this article satisfied me that my patient had died of a similar condition.

Since that time so much has been written that no attempt will be made to review the literature but only the practical points of the situation will be discussed.

A knowledge of some of the metabolic processes of the liver is essential before the prophylaxis and treatment of this condition can be properly understood.

The influence of diet upon the development of acidosis: Proteins in excess result in the excretion of acid products; these do not appear to be injurious; if carbohydrates are withdrawn for any length of time acetone and diacetic acid appear in the urine; they generally disappear as soon as carbohydrates are again given.

Under an excessive fat diet acetone rapidly makes its appearance in the urine. This has been shown by clinical experience as well as by experiments upon animals.

Chemical pathology: Acetone represents the lowest derivative in one of the fatty acid series and it results from the oxidation of diacetic acid and B-oxybutyric acid. It is found under apparently normal circumstances in the urine, but when diacetic and B-oxybutyric acid are present it is an evidence of a toxemia in consequence of the destruction of liver cells, for it has been proven that acetone is formed in the liver. If the fatty acids are not entirely oxidized they must unite with the alkalies in the blood, which combination withdraws the alkaline bases from the tissues and so acidosis results.

Glycogen is produced in the liver by the transformation of carbohydrates. If these substances are withheld the liver will utilize the fat of the body. When this process occurs as in starvation, acids appear in the urine, hence it is seen when glycogen is present in the liver in sufficient quantities that there is no transformation of the fat of the body with its consequent acidosis.

Effects of anesthesia: It has been shown clinically as well as by experiment that all anesthetics cause degeneration of the liver cells. Clinically the drop method of ether anesthesia has been found to reduce the output of acetone by one-half and even more when the fats in the preliminary diet have been limited and carbohydrates permitted in excess. If there is any disturbance in the liver in consequence of a deficient metabolism, as shown by the excretion of acetone, the organism may be able to take care of the anesthetic without any disastrous results, but when diacetic acid is present before operation this condition is always aggravated and frequently results in acid intoxication.

Classification.

1. *Sub-acidosis:* Here acid products are present without causing any symptoms.
2. *Acidosis:* Definite symptoms such as per-

* Read at the Regular Meeting of the San Francisco County Medical Society, July 9, 1912.

sistent vomiting and marked restlessness are present.

3. *Acid intoxication:* The clinical picture is very vivid and is marked by coma, delirium and convulsions and is preceded by restlessness and vomiting.

Prophylaxis: As experience has shown that acidosis and its allied conditions may be due to a diminution in the ingestion of carbohydrates, this should be avoided as a preliminary to operation. It has been my practice to give bread and potatoes with luncheon on the day previous to operation; in this way some of the metabolic problems are solved. Since this method has been observed the cases of vomiting and restlessness which so often were due to sub-acute acidosis are seldom seen.

Post operative prophylaxis: In abdominal conditions as soon as the patient commences to pass flatus, gruel is given to avoid the possibility of starvation acidosis. In other operations, not abdominal, carbohydrates may be given as soon as the tendency to nausea has subsided.

Operations should be postponed upon patients having acetone bodies in the urine until these bodies have disappeared as a consequence of treatment. Up to this time routine examinations for acid bodies have not been adopted, but it is only a question of time before these examinations will be as carefully carried out as they are for other pathological products.

While my observations in this respect have never been confirmed in the laboratory, I am convinced that by giving patients starchy foods as early as possible after operation, a more satisfactory convalescence follows.

Anesthetic: As before stated anesthetics have been shown to exercise a harmful effect upon the liver cells which results in the excretion of acetone and its allied bodies, hence every effort is now being made to lessen the quantity of the narcotic administered.

Crile, in this respect has done more than anyone by his method of anoci association. He employs $\frac{1}{4}\%$ novocain solution without adrenalin, preceded by scopalamin 1-100 plus $\frac{1}{6}$ morphine, and he follows with nitrous oxid plus oxygen. At times, if it becomes necessary, small quantities of ether are given. This combination produces excellent anesthesia with the least possible damage to the liver. Crile has demonstrated to his own satisfaction that post operative acidosis can be practically eliminated by this procedure.

Treatment: If acidosis in any form supervenes upon an operation, this condition can be recognized by the usual tests. If the patient vomits so that feeding by mouth is impossible, it is important to administer glucose by rectum; this can be done by introducing slowly 1 oz. of glucose plus 4 oz. of saline every 4 hours. Glucose when introduced by rectum is entirely consumed and appears to answer the purpose very well. If glucose is injected subcutaneously, my experience has shown that it is eliminated without change

in the urine, showing that this subcutaneous method should be discarded. Intravenous injection of a 2.4% solution which is isotonic has been advocated, but I have had no personal experience with this method. If the patient is not vomiting, gruel should be given in quantities with sugar. Concerning the employment of bicarbonate of soda, opinions differ as to the real effects of this drug. My impression is that in order to obtain any effect it must be given in very large quantities, giving as high as 1 oz. every 2 hours in severe cases of acidosis. At times this drug appears to accomplish, when persisted in, definite results.

In conclusion I desire to call attention to the report of the Committee on Anesthesia that was presented at the last meeting of the A. M. A. It represents the last word on anesthesia and is well worth a very careful study.

Discussion.

Dr. Clarence Quinan: The acidosis problem is obviously a very complicated one. Dr. Levison's paper is especially interesting to me. I do not know, however, whether the morbid changes he describes may be regarded as a definite phase of the acidosis. From a study of the action of chloroform upon blood serum, it appears not improbable that in such cases as he relates we must reckon with the lipid bodies of the serum, or of the tissue cells. I have pointed out that human serum contains in the neighborhood of one per cent. of these fatty bodies, and that they are for the most part loosely bound to a group of insoluble globulins. It is of course well known that chloroform is a powerful lipid solvent. The tentative supposition may be advanced, therefore, that the degenerative changes which sometimes follow chloroform anesthesia may be due primarily to the dissociation of a lipo-globulin complex.

From the fact that the serum lipoids are not readily attacked by dilute chloroform, it seems likely that it is the lipoids of the cellular structures, especially, which are affected in such cases.

Dr. H. D'Arcy Power: It seems to me that acidosis is rather associative than causative. In particular, Dr. Fleischner's last case, where he had the cyclic vomiting, the acid test was applied steadily yet the symptoms appeared before the acid. The test is an accurate one and often shows diacetic acid in cases without severe symptoms, yet here we had cyclic vomiting before the acidosis. It is difficult to see how the latter can be considered the cause. In so far as treatment is concerned, it would appear that in earlier days the very common treatment of nearly all liver conditions by the use of alkalies was justified by what has been claimed this evening.

Dr. Fleischner, closing discussion: I have practically nothing to add to the paper I read. I tried to make it perfectly plain that I appreciated the fact that the acidoses which I observed were associated with different conditions, possibly results. I feel that in portraying this subject, one errs unless he tries to draw attention to the fact that this form of acid poisoning is essentially responsible for symptoms which can be relieved by combating the acid condition. Whether it is causative factor or result, I do not know, and apparently no one else seems to know, but these acid intoxications are responsible for conditions in all forms of disease which make the patient uncomfortable. How and why they come, I do not know, but I do know that patients are more comfortable and better after their treatment.

THE IMPORTANCE OF NON-DIABETIC ACIDOSIS.*

By E. C. FLEISCHNER, M. D., San Francisco.

The immense amount of work that has been done upon this very interesting and poorly understood subject since 1877, when Walter first reported acid intoxication in rabbits, gives one some idea of the bearing that it must have on the various processes of health and disease. A careful résumé of the literature is strikingly discouraging, however, because it reveals the fact that many of the features of acid poisoning are as obscure to-day as they were 30 years ago. Whether the condition is essentially a symptom of certain pathological states, whether it is an etiological factor of certain pathological processes, or whether it is simply an associated condition of numerous diseases, are all factors that must be taken into consideration, and yet the diversity of opinion as expressed by different experimenters is such as to overwhelm one in an endeavor to formulate definite conclusions.

Of one point, however, we may be certain and that is that in the large number of conditions in which acidosis is either an etiological factor, a symptom or a pathological result, we may by combating the acidosis improve the patient's condition. As clinicians, that is a factor which must constantly be taken into consideration.

The object of this paper is not to draw attention to any new data upon this much complicated subject, but rather by reporting a number of interesting cases in which acidosis was a prominent feature, to recall the fact that acetonuria and diaceturia are far more frequent than those urinary conditions for which we habitually test, and when present are unquestionably responsible for, or at least represent a part of, a distinct toxic process. Although this paper is essentially a clinical one, it may be well to at least call attention briefly to the experimental facts that we have at our disposal from which conclusions can be drawn.

Ewing, in the Transactions of the Association of American Physicians, 1908, calls attention to two experimental prototypes of acidosis. First, the toxemia resulting from the ingestion of HCl, first described by Walter; and second, the toxemia resulting from liver extirpation, or following an Eck's fistula, first described by Minkowski. Animals subjected to these two experiments show definite pathological and chemical differences. Those dogs suffering from HCl poisoning show no prominent post-mortem changes. The urine shows a marked excess of acetone compound. The ammonia is proportional to these acids and the amino acid nitrogen is slightly increased. The clinical types of acidosis comparable to HCl poisoning in animals are diabetes, with which this article does not deal, Kussmaul's coma, starvation and febrile acid intoxication. Animals with Eck's fistulae or whose livers have been extirpated, show on the contrary excessive fatty degenerative processes. The urine contains an excess of lactic acid,

glucose is often present; the acetone products are secondary, ammonia is present in excess of the fatty acids and the amino acid nitrogen is much increased. Allied to these clinically, we have cases of phosphorus poisoning, pernicious vomiting of pregnancy, acute yellow atrophy of the liver, eclampsia, delayed chloroform poisoning and cyclic vomiting.

It is at least interesting to note the difference in origin of the high ammonia content in the two groups of cases. In the first, the high ammonia represents an effort to neutralize the acid products. In the second group of cases, it is due to improper formation of urea incidental to the marked destruction of liver tissue.

Up to 1905 most of the theories concerning the formation of acid products were purely problematical, and since that time, largely through the work in Knoop's laboratory, some of the more obscure points have been elucidated although the question of the toxicity is still a much disputed one. In the early eighties Gerhardt discovered the Fe Cl_2 reaction in diabetic urine, and about the same time the younger Von Jaksch isolated diacetic acid, which he found responsible for this reaction and to which he ascribed all the symptoms of acid poisoning. Stadelmann in 1883, in an effort to understand the high ammonia content in diabetes, discovered Beta oxybutyric acid.

As a result of the investigative work done by Knoop in 1905, a great deal was added to our knowledge of the formation of the acid products. Before that time it had been definitely conceded that the acetone bodies might be formed from either proteins or fats, but the process had never been observed. Geelmuyden had demonstrated that the addition of large amounts of fat increased acetonuria. Rosenfeld showed that the acid products appeared in the urine in carbohydrate free diets. Hirschfeld and Geelmuyden, experimenting on carbohydrate administration in the acidosis of starvation, had concluded that from 50—100 gms. of carbohydrate served to abolish the acetonuria. It remained, as has been stated, for Knoop to demonstrate the formation of the acetone products from the fatty acids. Under normal conditions the aromatic acids are destroyed so quickly in the body that the steps can not be followed. By adding the Benzen radicle C_6H_5 to the fatty acids, Knoop retarded oxidation and was able to show the formation of the acetone bodies. Embden passed aerated blood through excised livers and was able to demonstrate the presence of a small quantity of acetone in the blood. He added certain organic acids to the aerated blood on repeating the same experiment and was able to increase the formation of acetone. Working in the same laboratory, Baer and Blum fed these same aromatic acids to diabetic cases and were able to increase the acetonuria. Having demonstrated that fat ingestion through the action of aromatic acids is responsible in certain pathological conditions for the development of acid intoxication, it is perfectly rational to assume that proteins through their amino acids have some part in the same

* Read at the Regular Meeting of the San Francisco County Medical Society, July 9, 1912.

process. The amino acids have only to lose the NH_2 group to revert to fatty acid and as such act in the same manner as the acid radicles derived from fat tissues. Folin of Boston, before the Association of American Physicians, 1907, in discussing the acid intoxication theory, asks the following questions:

1. "Why does the oxidation of carbohydrates diminish the formation of acid products?"

2. Why are oxybutyric and diacetic acids formed rather than lactic and oxalic acids?

3. Is the universal assumption that oxybutyric acid is the forerunner of diacetic acid and acetone a correct one?"

To these questions may be added:

4. Are acetone and diacetic acid ever present in quantities sufficiently large to produce toxic symptoms *per se*?

5. If not, are they responsible for the toxemia by their action on the pathological processes?

6. What bearing upon acid intoxication has alkali absorption from the tissues?

In short, in discussing acidosis one is overwhelmed by a large number of unsolved problems; and there is no field in experimental medicine today so fertile as that which deals with acid intoxication, its causes, its effects, and its meaning. Edsall, in a discussion of acidosis in the *British Medical Journal*, touches on some of these points. He states the usual theory that acetone and diacetic acid are derivatives of Beta oxybutyric acid, but that, on the other hand, it must be a reversible process because by feeding animals diacetic acid, Beta oxybutyric acid is found in the urine. He further states that acetone and diacetic acid are never present in amounts sufficient to be toxic, but that these favor autolysis and that the grave symptoms often accompanying their presence may be due to their autolytic action.

A great deal of time might be given to further portrayal of the subject under discussion from the theoretical and experimental side, but unfortunately this would not enable us to draw any definite conclusions as to even a problematically correct understanding of it. We know only that this toxemia is associated with a great many pathological states and that it is a clinical entity which must be combated, if not for the toxic effects that the acid products themselves have, at least for the very serious symptoms which are so frequently associated with them.

Most authors and most text-books give a detailed classification of the diseases with which acidosis is most often associated, and to make a paper complete this is unquestionably reasonable. It hardly seems exaggeration, however, to state emphatically that there is scarcely a pathological condition to which humans are heir, with which there may not be associated at times a severe degree of acid intoxication. Whether it be to the internist, the surgeon, the pediatricist, the obstetrician, the aurist, or oculist, patients will constantly present themselves with obscure symptoms, the origin of which either primarily or secondarily

is an acid poisoning. The following conditions are generally recognized, however, as most frequently giving rise to acidosis:

1. *Starvation*. There is probably no single condition that is more frequently responsible for the presence of acid products in the urine than actual starvation, either through restriction of diet or through lack of ability to assimilate the food that is given.

2. *Gastro-intestinal Diseases*.

3. *Specific Infections*, Diphtheria, Pneumonia, etc.

4. *Diabetes*.

5. *Cachexia* from Malignant Disease.

6. *Poisons*. Phosphorus, Morphine, Sodium, Salicylates, Phloridzin.

7. *Anesthetics*.

8. *Acute Yellow Atrophy of Liver*.

9. *Toxemia of Pregnancy*, Eclampsia.

10. *Recurrent or Cyclic Vomiting of Childhood*.

11. *Ingestion of Large Quantities of Fat*.

It is truly surprising with the very great simplicity attached to the qualitative tests for diacetic acid and acetone that so many urinalyses are done without any attention being paid to their presence. Both tests are far more simple than the Fehling or allied reactions for sugar, they are found positive a thousand times more frequently than the sugar test, and yet, surprising as it may seem, many laboratory experts neglect them. There is no more striking reaction in chemical pathology than the port wine red color which is developed when tincture of the chloride of iron is added to a urine containing diacetic acid; and the test for acetone by adding sodium hydrate and iodine to the urine and gently beating, is surely a simple one, for we are all acquainted with the odor of iodoform, which is developed along with the presence of iodoform crystals if the amount of acetone is considerable.

T. S. Hart of New York, in the *Archives of Internal Medicine*, 1911, describes a simple quantitative method of determining the amount of diacetic acid. He has two standard solutions: I, contains ethyl acetate 1.0, alcohol 25., water 1000.0; II, contains Fe Cl_2 100, H_2O 100. To 10 cc. of I he adds 1 cc. of II and to 10 cc. of urine he adds 1 cc. of II. He dilutes the urine sufficiently to make the color the same as that obtained with the standard solutions and the amount of dilution necessary determines the index. His conclusions are as follows:

I. Acidosis index is a measure of the acidosis based on the depth of color obtained with the Fe Cl_2 reaction.

II. The values thus obtained run parallel with a polariscopic method, to ammonia output and chemical determinations.

III. The method is probably better than the polariscopic method, basing his conclusion on Magnus-Levy's statement that polariscopic values are exaggerated.

IV. The method is better than ammonia determinations, especially if alkalis are being given.

V. It is simple.

It is of course very questionable whether quantitative tests are essential in the determination of degree of acidosis. After all, the problem deals with so many uncertainties that the results obtained by quantitative reactions are by no means always an indication of the clinical condition. One sees constantly cases in which the amount of diacetic acid and acetone is very small and yet the symptoms very marked, and the reverse is likewise frequently encountered.

Very little mention has been made in this paper of Beta oxybutyric acid, not because the importance of this toxic substance is not thoroughly appreciated but because the tests for it are so complicated as to render them almost impossible for the clinician to perform.

Without further elaboration on the causes and results of acid intoxication, the following reports of a number of interesting and obscure cases will graphically show the very important role that acidosis plays in disease:

I. Diagnosis: Colitis and acidosis. Mrs. A., age 54, was first seen in February, 1911, suffering from a typical attack of mucous colitis. Except for a marked indicanuria at that time the urinalysis was negative. She was put under treatment and her symptoms rapidly improved. Two weeks later she was taken acutely ill with general aches and pains, and of her own accord took 15 grains of aspirin. The following morning she developed a fine papular erythematous rash over her whole body. Her temperature was normal. Throat and tongue negative. From the appearance of the rash it might have been either a toxic erythema of drug or intestinal origin or German measles. The rash persisted four days and with its disappearance patient developed a very severe frontal headache. This persisted and with it the blood pressure rose to 180 systolic. Coincidental with the rise in blood pressure, patient complained of a peculiar disturbance in sight which she described as a sensation of wheels turning around and around. This syndrome immediately suggested a kidney complication, and a urinalysis showed a trace of albumen and some granular casts. More as a matter of routine than otherwise, acetone and diacetic acid were tested for and both were present in excessively large amounts. Patient was immediately put upon enemas of glucose and bicarbonate of soda, 4% and 3% respectively. Bicarbonate of soda in 10 grain doses was given every 2 hours, and a full carbohydrate diet prescribed. At the end of one week patient's general condition was much improved. Headaches had greatly ameliorated and the eye condition was less marked. An examination of the eye showed no tendency to glaucoma, of which the symptoms were suggestive, but a marked injection of the choroidal vessel. For two months subsequently patient had occasional return of the headache and eye symptoms coincidental to reappearances of the diacetic acid and acetone in the urine, but they rapidly disappeared under treatment.

II. Diagnosis: Phlebitis of femoral vein. Acidosis. J. R. B., age 10 years, was taken suddenly ill March 25th, 1911, with excruciating pain in the right thigh and leg. The exact location of the pain could not be defined. With the appearance of the pain there developed slight rise in temperature and loss of appetite. Questioning revealed the fact that patient had suffered with a similar attack 5 weeks before for which he had been confined

to his bed for 7 days. Physical examination was negative as far as the thorax and abdomen were concerned. The right lower extremity was swollen in its entirety but there was no edema into the subcutaneous tissues. On measurement, the circumference of the right thigh was 2 cm. greater than left thigh and the right leg was $1\frac{1}{2}$ cm. greater in circumference than left leg. Over the course of the femoral vein there was tenderness. Motion was limited in every direction by the excruciating pain that patient suffered. The extremity seemed at greatest ease when patient was in erect position and leg was hanging. Spine was normal. X-ray picture of hip joint and thigh negative. Leukocyte count 12,000. Differential count negative. Urinalysis negative except for excess of acetone and diacetic acid. It was learned that patient had been eating meat three times a day and that bowel movements for some time had been very foul in odor. Under treatment, which consisted of carbohydrate diet, glucose frequently during the day in the form of Karo syrup, sodium bicarbonate grains x q 2 H, symptoms subsided entirely in eight days.

III. Diagnosis: Nephritis and acidosis. Mrs. R. S. Age 42. Family and previous history negative. The duration of present condition is rather indefinite. The chief symptoms are headache, dizziness, edema of lower extremities, dyspnea on exertion and disturbance in vision. The history is not at all satisfactory as patient has no idea of duration of illness.

The physical examination revealed a very obese woman of 42. Heart. Percussion absolutely unsatisfactory on account of thickness of thoracic wall, but definite hypertrophy unquestionably present. No murmurs. Marked accentuation of second aortic. Abdomen. No ascites. Liver extends two fingers below free border of ribs. Decided edema of lower extremities. Blood pressure, systolic 180. Retinal examination shows a hemorrhagic retinitis. Urinalysis: sp. grav. 1026. Albumen .05%. Sugar negative. Microscopical examination shows many hyaline and granular casts. A very large amount of acetone and diacetic acid is present.

Patient was put to bed and placed upon large doses of alkali and glucose. With the disappearance of her acidosis her symptoms greatly improved, despite the severe degree of nephritis.

IV. Diagnosis: Septicemia and acidosis. B. D., 14 years. Family and previous history negative. One week before, patient was seen she was suddenly taken ill with malaise, headache, and high temperature. These symptoms had persisted, the temperature being 104° in the morning and normal at night. There had been no chill or septic sweating. For 24 hours patient had complained of tenderness along the anterior cervical glands on the right side. There had been no other local symptoms referable to any other organ in the body.

Physical examination was negative with the exception of the hypertrophied and tender cervical glands and some congestion in the throat. Urinalysis was negative except for intense acidosis. W. B. C. 14,000. Polymorphonuclears 94%. In view of the septic temperature, even though inverse in character, the polymorphonuclear relative leukocytosis, and the tenderness over the cervical glands on the right side, a diagnosis was made of septicemia emanating from the throat. Blood culture was not done.

Treatment. On account of the intense acidosis brought on probably both by the high temperature and limited diet, alkalis were administered and carbohydrates given in large amounts. The symptoms subsided in a few days.

V. Diagnosis: Toxemia of pregnancy. Mrs. W. F., 34 years. Family and previous history have no bearing. Present illness began 7 days before patient was seen, in the eighth month of an apparently normal pregnancy, with backache and nausea,

which symptoms persisted 24 hours but ameliorated on the administration of cathartics. Forty-eight hours later the symptoms became very much worse and intense headache was added to the marked vomiting and backache. At the same time decided tenderness appeared in the right hypochondrium and patient developed slight temperature, 99°-100°.

Physical examination shows very well developed, well nourished woman of about 35 years. Cheeks flushed. Expression very apathetic. Atmosphere of room is permeated with an aromatic odor that suggests acetone and diacetic acid. This is particularly marked in the breath. Glands negative. Throat negative. Heart and lungs normal. Abdomen distended by eight months' pregnant uterus. Liver dullness begins at 5th rib and extends 2 finger's-breadth below free border of ribs. There is a very definite tenderness over the border of the liver. Fetal heart sounds audible and of good quality. Pulse 110. Temperature 101°.

Urine. Brownish amber, cloudy, acid, 1020, albumen 0.1%, sugar negative. Acid products, acetone and diacetic acid in great excess. Indian great excess. Microscopical examination showed many granular casts.

It seemed wise to temporize 24 hours, and patient was put upon full doses of alkalies and carbohydrates. At the end of 24 hours toxemia was greater, icterus had developed, all of the pre-existing symptoms were more marked, and it was deemed advisable to induce labor, which was done by Dr. Wakefield at 11 p. m. The alkaline treatment was continued. Patient went into labor at 5 a. m. and was delivered 8½ hours later. One of the most striking facts noted in connection with this case is that the acid products had disappeared from the urine within 18 hours of the time of delivery. Recovery was uneventful. This same patient has within the past month undergone a major operation. Within a few hours of the administration of the anesthetic she developed an intense acidosis from which she recovered relatively very slowly. It is interesting as suggesting the question of individual predisposition to acidosis.

VI. Diagnosis. Cyclic Vomiting of Childhood. G. Y., 6 Years. Family history has no bearing. Previous history: For three years patient has had spondylitis deformans. Up to 3 weeks ago patient had been for one year confined to her bed. Present illness began in May, 1911, with the occurrence of a very severe attack of persistent vomiting, which lasted several days. Since that time patient has had these attacks every month with one or two exceptions. Attacks can usually be foretold by loss of appetite, coated tongue, and a very bad odor to the breath. Temperature rises during the attack to about 101°, and there is some tenderness in the right iliac region. One very peculiar feature of these attacks is that at the end of them patient has a hematuria. There is no headache.

Physical examination at this time, which was between attacks, was negative except for the presence of a very marked deformity due to a tubercular spondylitis. Urinalysis was absolutely negative.

Treatment at this time was not instituted. Mother was furnished with Tr. ferri chloride and test tube and instructed how to test the urine every morning for diacetic acid, which test up to the onset of next attack of vomiting, two weeks later, was quite negative. Two weeks after the patient was seen, mother first noted the premonitory symptoms of an attack, and on the following morning patient began to vomit. The first specimen of urine that morning did not show any acid product, but the second urine voided 4 hours later contained a large amount of diacetic acid, which the mother detected, and acetone was also present.

Treatment. Patient was immediately put upon 4 hour enemas containing 60 grains of bicarbonate of soda in 4% sugar solution, and the enema was

held one hour and in that way retained. Vomiting ceased at the end of 24 hours and milk of magnesia was immediately started by mouth, one drachm every hour until one ounce had been given. Glucose in the form of Karo syrup was given in large quantity with carbohydrates and sodium bicarbonate gr. x every two hours. The enemata were discontinued and patient rapidly recovered.

The diagnosis having been made, an effort was then made to prevent the attacks. Bicarbonate of soda gr. v, 3 times a day was continued, and patient put upon an easily assimilable diet. Mother was instructed on the appearance of premonitory symptoms to administer milk of magnesia one drachm every hour for eight doses, and increase the bicarbonate soda to 10 grs. every two hours, and to use glucose freely by mouth. Since these directions have been followed, three attacks have been aborted and the acidosis has not developed.

One might go on indefinitely reciting cases in which a profound degree of acidosis was a marked feature. A careful review of these cases can lead to but one conclusion, and that is either as a cause or result of many pathological conditions we have an abnormal metabolism characterized by imperfect oxidation and the presence of abnormal acid products in the urine. The subject is still so thoroughly in the experimental stage that one is not able to state exactly why acidosis is so frequently present. Likewise, one is confused to note that acidosis may be fairly marked and the symptoms relatively slight. A hundred unanswered and unanswerable questions might occur to everyone, but of one fact we may be definitely certain, and that is that either independently, or as a complication of other diseases, we have in medicine a condition of acid intoxication which either *per se* or indirectly is responsible for definite symptom complexes, and that it is the duty of every one of us to be on the alert for the development of this condition because, more than can be said for many medical disturbances, it can be absolutely relieved by appropriate treatment.

TRANSFUSION.*

By N. H. CHAMBERLAIN, M. D., Oakland.

Although in the broader sense, transfusion includes the introduction of any fluid into the body, even saline solutions, we will use the word only to mean the causing of flow of blood directly from the vessels of one human being into the blood vessels of another.

The ten minutes allotted me is so short I will omit reference to the history of transfusion, and will confine my remarks chiefly to the technic and briefly to the indications, contraindications and the citation of a few cases.

Of the various methods the first I wish to mention is that of the direct anastomosis of the radial artery of the donor with a superficial vein (usually the median basilic) of the recipient. This is known as Carel's method and is described in the *Bulletin of Johns Hopkins Hospital*, 1907, and very excellently described and illustrated by Crile in his book on "Hemorrhage and Transfusion," published in

* Read before the Section on Medicine, of the San Francisco Medical Association, August 6th, 1912.

1909. This I will not attempt to describe for I have had no personal experience with it, and the operation is so difficult and lengthy as compared with other methods, as to be impracticable for the average surgeon. My description of technic will be confined to the two methods which I have used myself. The first is with Crile's canulae.

The instruments necessary for this operation are a set of Crile's canulae, two Crile's blood vessel clamps, a scalpel, a fine-toothed tissue forcep, a fine-pointed scissor, a hemostat with lock, a half-dozen ordinary hemostats, three mosquito hemostats toothed "Crile," small needles, needle holder and suture and ligature material; also several hypodermic syringes loaded with novocaine, or other local anesthetic, sterile vaseline and the ordinary dressings for wounds.

The donor and recipient are prepared by assuring them of the painlessness of the process, by cleansing surgically the left arms of each, and the preliminary hypodermatic injection of morphine or scopolomine, or both, about half an hour previous to the operation. The operator should have made himself thoroughly acquainted with both patients by a previous careful examination and history, and if the case is not urgent, the hemolysis test should be applied.

The donor and recipient are placed each on a surgical table, cotton inserted in their ears and their faces covered with damp towels. The patients are so placed with their heads in opposite directions that the left arm of each will rest comfortably on a small table placed between; the operator and assistant sitting on stools on opposite sides with the instrument and dressing tables within easy reach of the assistant. A nurse should be assigned to both donor and recipient, whose duty it is to change the face towels occasionally, reassure each as is necessary, watch their pulses, blood pressure and look out for their comfort. Unless the operation is done to relieve shock or hemorrhage, the recipient should usually be bled first to avoid acute cardiac dilatation, or rupture of the liver or spleen.

When all else is ready, the points of incision should be well cocaineized. The left radial artery of the donor is exposed for a distance of three or four cm., the distal portion ligated, all small branches carefully ligated and cut and a Crile clamp applied to the proximal part as near as possible to the place where the artery comes out of the undissected tissues. The clamp is screwed down with great care so as not to injure the vessel. The artery is cut squarely across close to the ligature and the projecting intima trimmed even with the retracted coat of the vessel.

The arm of the recipient is lightly bandaged so as to slightly distend the veins, the vein is dissected out for a distance similar to that of the artery, its distal end is ligated, its branches carefully tied and severed, its proximal part clamped cautiously and the vessel severed near the ligature. A fine suture is passed through the end of the cut vein and threaded through the canula for traction purposes to pull the vein through the handle end of the canula. The end of the vein is turned

back over the canula like a cuff and tied by a fine silk ligature in a groove next the handle. To the exposed intima of the vein is applied a little sterile vaseline, taking care none is introduced into the lumen of the vein.

By grasping the free end of the cut artery with the three fine-toothed hemostats, the artery is easily drawn over the canula and tied with a fine silk in the second groove. The clamp is removed from the vein first, then from the artery and the blood will begin to flow at once. The flow can be tested by noting the pulsation transmitted to the vein of the recipient. If insufficient, make gentle traction on the handle of the canula in the axis of the artery so as to stretch the artery slightly and the flow will be augmented.

A few points to bear in mind are to keep the wounds and exposed vessels moist with normal sterile salt solution continuously, avoid the introduction of air or vaseline or a blood clot into the vein. If there has been a serious slip in the technic, begin from the beginning again. By not trying to patch it up, valuable time will be saved. Always select as large a canula as you can easily use and select a vein not too large in proportion to the artery used. A large vein in a small canula will fill it so full as to cause an obstruction. Too large a canula will give trouble in stretching the artery over, and will increase the danger of injury to the intima. If the canula is not introduced in perfect line with the lumen of the vessel, the end will press against the wall and obstruct the flow of blood.

The second method referred to is that of Elsberg. The instruments required are Elsberg's canula and three little hooks or tenaculæ, scalpel, a fine-toothed tissue forcep, a fine-pointed scissor, a half dozen ordinary hemostats, needles, needle-holders, suture and ligature material and the hypodermic syringes loaded with the local anesthetic as before.

Elsberg's canula may be described as a bivalve canula, with handle and thumb screw to adjust the blades of the instrument; the blades being armed with four hooklets to catch the cuff of the vessel, and so obviate the use of a ligature.

The technic varies from the Crile operation in that the canula is opened and placed over the artery and the blades closed and so used as a clamp to control the flow of blood when the artery is severed; also in that it is not necessary to sever the vein, or even lift it from its bed. After the canula is applied to the artery and the cut end of the vessel is cuffed back over the instrument, by the assistance of the three little tenaculæ, the vein of the recipient is slit in the axis of the vessel and the canula is inserted through the slit into the lumen of the vein in the proximal direction. By turning the thumb screws the blades of the canula are separated and the blood allowed to flow. The rapidity of the flow can be estimated by testing the transmitted pulse in the vein of the recipient as already mentioned, and can easily be controlled by manipulation of the blades of the canula by means of the thumb screw.

The only accurate method of estimating the

amount of blood transfused is by very careful weighing of one or both patients before and after on finely adjusted scales. This, of course, is impractical and very unnecessary. Barring possible acute dilatation of the heart, there is little danger of the recipient getting too much blood. The chief anxiety is produced by the risk of the donor losing too much. As a rule, however, if the psychological influence has been carefully controlled, the symptoms of hemorrhage develops so gradually in the donor that there is very little excuse for passing the danger point.

Transfusion, though classed as a minor operation, should not be attempted without careful preparation and training on the part of the surgeon, and in any event should be looked upon as an operation of last resort. Normal salt infusion is so satisfactory as to serve in the majority of cases which suggest transfusion, and is not attended with the same danger.

Transfusion has been tried in a great variety of diseases, including carcinoma, sarcoma, tuberculosis, pernicious anemia, secondary anemias, leukemia, hemophilia, purpura, hyperthyroidism, chronic suppuration, shock and hemorrhage. Its greatest, if not only, success has been in the secondary anemias, shock and hemorrhage and to fortify an anemic patient against the dangers of a major surgical procedure. In cancer, tuberculosis and pernicious anemia it has been a failure.

Hemolysis is a danger to be always in mind, but as the test for tolerance requires at least twenty-four hours, and then is not always reliable, it is not available in the emergency cases.

Two cases in which accurate records are not available are mentioned briefly, each to emphasize a point already brought up.

One, a patient of Dr. Shiels, of about 50 years of age, with 30% hemaglobin, and a large fibroid of more than seven years' growth. Transfusion was done August 9, 1910. The hemaglobin August 11th, 1910, was 50% on which day an eleven-pound uterine fibroid was successfully removed by Dr. Porter, and the patient's condition following gave excellent promise of recovery. This patient died August 14th, of acute dilatation of the stomach.

A Mr. McG. had ulcer of the stomach and became practically moribund November 7, 1910, from hemorrhage, when transfusion was performed, which resulted in the immediate establishment of convalescence. After sufficient recovery he submitted to a gastro-enterostomy which was entirely successful, and he now enjoys excellent health.

Probably the most interesting and instructive case was Mrs. P., whom we first saw on February 21, 1910. She gave the clinical picture of the termination of a pernicious anemia, colorless, unconscious, and with a very slow, sighing respiration. A blood examination revealed:

Erythrocytes	620,000
Leukocytes	19,600
Hemaglobin	10%

An immediate transfusion was done as soon as Dr. McClurg, who made the blood examination,

stated that the anemia was not pernicious but secondary.

The blood count next day, February 22, 1910, was—

Erythrocytes	960,000
Leukocytes	16,000
Hemaglobin	22%

March 8th, 1910, we found—

Erythrocytes	1,520,000
Leukocytes	6,400
Hemaglobin	27%

Another transfusion was done April 19, 1910, and July 11, 1910, the blood was—

Erythrocytes	1,810,000
Hemaglobin	35%

August 5th, 1910—

Erythrocytes	2,360,000
Hemaglobin	40%

September 21, 1911—

Erythrocytes	2,910,000
Hemaglobin	76%

March 7th, 1912—

Erythrocytes	3,860,000
Leukocytes	6,200
Hemaglobin	82%

Discussion.

Dr. W. I. Terry: I do not think I heard Dr. Chamberlain speak of transfusion in cases of illuminating gas poisoning; it seems to help these cases remarkably. I have done it in one case (moribund) without success, and I think that Dr. Eloesser did it in one case successfully.

I think mention should be made of the Brewer tubes because it is possible that they will ultimately supplant others, being more simple. They are glass tubes, coated with paraffin, paraffin oil, or vaseline (preferably paraffin). I have not yet employed them, but I shall do so now that we have the statement of Carrel that glass tubes coated with paraffin can remain months in the aorta of animals without producing coagula. He has also used rubber tubes coated with vaseline and the circulation has continued for several months in some of his dogs. There are a number of points in the technic which one gets from experience, but I think Dr. Chamberlain went over most of them very carefully. In connection with tuberculosis, I might state that Crile has carried out some work recently on animals, transfusing the blood of a bull into a markedly tuberculous cow at the Agricultural Experiment Station in Washington, and the animal apparently recovered from its tuberculosis. These experiments will be continued, however, before they are reported. It looks as though they might be important in connection with human tuberculosis if the bovine and human are in any way related. In the acute anemias, and in hemorrhage, we have in transfusion a very important thing. Dr. Chamberlain has mentioned transfusion in connection with the preparation of patients for severe operations when the hemoglobin is down. I have performed twenty transfusions and more than half of them were preliminary to other operations. If one can raise the hemoglobin 20% the patient's resistance is greatly improved. I had a gastric ulcer hemorrhage which had reduced the patient to less than 20% and the hemorrhage continued rapidly. Transfusion was done and the hemorrhage stopped. One month later a gastric operation was done, and the hemoglobin by that time was over 50%. I think Dr. Chamberlain's case, in which the hemoglobin was down to 10%, was most remarkable.

EPIDEMIC POLIOMYELITIS.*

By PHILIP KING BROWN, M. D., San Francisco.

Historically there was no special importance attached to this disease until its significance as a contagious epidemic disorder was emphasized in recent years. That it has existed endemically but infrequently in all parts of our land was apparent, but that it should become an almost national problem was due solely to the appreciation of its epidemic character. In this role it comes close home to us and especially to you residents of this valley, since the first epidemic of the disease in this state and the third recorded in America occurred in June, 1898, at La Grande, not more than 20 miles distant. To Newmark's service in the San Francisco Polyclinic two of the affected children were brought and from the history obtained it seemed that other similar cases had occurred. As there were on record at that time only 13 definite epidemics of the disease, much interest attached to these few cases, and I went to La Grande to see them. There, in the middle of a hot summer, is an isolated, sun sterilized village of 49 inhabitants four, or one-twelfth of the total number of persons, and one-third of all the children had come down with the disease. One had died. I examined the three survivors—two of them for the second time, and was able to get sufficient history of the fourth case to confirm the diagnosis of poliomyelitis. Since that time there have been epidemics of the disease in this state reported from San Francisco in 1903 by Dr. Alice Wood; in Watsonville and the neighborhood in 1907, reported by me; in Redding and Red Bluff in 1909, also reported by me. In San Francisco in 1910, reported by Dr. C. E. Fleischner. In Palo Alto in 1911, reported by Dr. R. L. Wilbur and in the most unsanitary suburb of Los Angeles in 1912, by Dr. T. J. Orbison. The striking characteristics of these epidemics have been their generally rural or suburban character where the sanitary conditions were poor or where distinctly unsanitary conditions were the rule.

In collecting data regarding the disease several unrecorded epidemics in other states were uncovered, notably one in Idaho in 1902 in which some 25 children were attacked.

A brief résumé of the epidemics is given to show the increasing recognition of the disease, or its spread, or both:

Epidemics.

- 1st record—Colmer, *Am. Jr. Med. Sci.* July, 1843, 8 or 10 cases in 1841—W. Feliciana, La.
2nd record—Bergenholtz. Mentioned by Marie, 13 cases, 1881, Umea.
3rd record—Cordier, *Lyon Medical*, 1888, 13 cases, 1885—Lyon, France.

Then began the more general recognition of the epidemic character of the disease in Norway, Sweden, Germany, Italy, S. Australia, New England and finally its occurrence in hundreds of cases in single localities, chiefly in and around Boston, New York, and in Nebraska, and Minnesota, Norway and Oceania.

Epidemics recorded in 5-year periods from 1880:

	Epidemics.	Cases	Average number cases	by decades
1880-84	2	23	11.5	1880-89 9 116 13
1885-89	7	93	13	
1890-94	4	151	38	1890-99 27 496 18
1895-99	23	315	15	
1900-04	9	349	39	1900-09 34 8403 280
1905-09	25	8,054	322	

Over 5000 of the cases reported in the last five year period occurred in the United States, and in the following year, 1910, it is estimated that the total reached fully 3000.

The recent Los Angeles epidemic briefly reported by Orbison (*Cal. State Jr.*, Oct., 1912), is a splendid example of proper handling of what might have been a most alarming spread of the disease. In the middle of June a few cases were reported in an outlying and neglected district of the city along both sides of the river bed "where many of the city streets had never been watered and where the hygienic conditions of the inhabitants were bad."

As soon as the epidemic nature of the trouble was fully appreciated the mayor called a meeting of physicians, clergymen and laymen; hospital and publicity committees were named, a suitably located building was promptly put in order and equipped for an isolation hospital, the city council providing funds and moral support, enabling the committee to provide also strict quarantine. The district was cleaned up—all streets were oiled or watered and the result was that the number of new cases fell rapidly so that whereas 41 were reported the last week in July only two were reported the last week in August.

There will always be doubters who tell you that this sort of handling of epidemics is unnecessary and costly, it hurts trade, the publicity it makes is harmful to municipal growth. These are the selfish and superficial critics who fail to hear the question asked, how does the community meet its dangers; does it hide them and seek to prevent any knowledge of them from going abroad, or has it met them skilfully and promptly and whole-heartedly? The people are suspicious of concealment and they can be educated easily to appreciate modern measures of prevention of disease. Even Senator Works, in a recent address in San Francisco, after getting his audience laughing over extracts from a State Health Bulletin recommending protection of latreens from flies because typhoid was at times a fly-borne disease (the very idea!), pasteurizing milk to prevent infantile digestive disorders (he never was raised on anything but good condensed milk, or cow's milk from a good old cow), was obliged to explain when they roared after he read in the next paragraph,—that mosquitoes transmitted malaria and yellow fever,—that this really was true, he knew it from personal investigation in Washington. Thank God for that much light in our national representative; and it does show the possibilities of education.

Causes. So far all that we know is based on a study of seasonal relation of epidemics in which

* Read before the San Joaquin Valley Medical Society, October 6, 1912.

it is shown that the disease is commonest in summer, but it may occur in any season. This is especially significant when it was shown that the channel of infection is through the tonsil or nasopharyngeal mucous membranes and that a communicable virus has been recovered as late as six months after recovery from the acute symptoms of the disease. The virus passes readily through a Berkefeld filter and is unchanged by drying, freezing or suspension in glycerine. It has never been cultivated and it is ultra microscopic. In this respect it belongs in the class with the virus of rabies, dengue, scarlet fever, mumps and measles.

Contagousness. Zappert is almost alone amongst recent writers in opposing the idea of contagiousness of the disease. Marie of the earlier French writers, including Charcot, laid great stress on the hereditary nature of the disease, pointing to the known occurrence of the disease in several members of one family as evidence of hereditary influences. Emerson shows that 166 children were exposed in the Colrain epidemic in Deerfield Valley, in families in which 67 cases occurred and only four of the 166 contracted the disease. There were 16 cases where children slept with a brother or sister having the disease and 21 more where personal contact was intimate and only two of these got the disease. Morse reports that no case ever developed in the wards of the Children's Hospital in Boston although patients with the disease have been treated there for years, nor did the introduction of a case (presumably acute) into St. Mary's Infant Asylum in 1909 result in any contagion.

On the other hand Wickman's report of the 1905 epidemic in Norway shows contact as the likely factor and traces the spread from village to village by contacts. Harbitz of Christiania concurs in this opinion and reports cases among nurses caring for acute cases. Flexner calls attention to carriers, in his suggestion that the big epidemics in this country occurred first in the seaports and then in the middle west, especially the parts settled by Scandinavians, among whom most of the European epidemics have occurred.

The Nebraska epidemic in 1910 (Shidler, *Jr. A. M. A.*, Jan. 22, 1910; McClanahan, *Jr. A. M. A.*, Oct. 1, 1910; Anderson, *Jr. A. M. A.*) shows the rural occurrence but no conclusive data on exposure to a common source of the virus or personal contact as the underlying factor in the spread of the disease. Shidler reports four and six cases in two families of six children, four in a family of five, and four in another of four children, but the vast majority of all cases occurred singly and over widely scattered territory.

Like all epidemic diseases the varying intensity in virulence plays an important role. By passing the virus through 20 monkeys Flexner has secured a potency which practically kills all monkeys inoculated. In studies of experimental transmissibility many domestic animals, chickens and pigeons, have resisted infection, but in the Vermont epidemic (Claverly) spinal cord changes were found in the chickens (Dana) and dogs, horses and pigs were attacked. Chickens were attacked in the Michigan epidemic of 1907 and Westphalia epi-

demic in 1908. The interesting fact has been established that the disease cannot be transmitted in monkeys through preparations of urine or bile of the affected animals. However, it may be transmitted by emulsions from nasal mucous membranes and intestinal discharges of monkeys intradurally inoculated, hence the nasal and mouth secretions and the feces are dangerous.

Theobald Smith has recently shown that certain of the paralyses of animals were probably unrelated to epidemic poliomyelitis, because emulsions of the spinal cord of recently paralyzed animals inoculated into monkeys failed to reproduce the disease. Paralysis in animals, however, is known to occur from a number of causes and it would seem that safe conclusions as to the disease being primarily one in animals cannot be drawn without repeated inoculation experiments with animals paralyzed during epidemics of the disease among human beings. In the meantime the Massachusetts State Board of Health (1911) reports paralysis among pigs preceding the epidemic at Woburn among human beings; symptoms in cows preceded it in Newton and in a cat in Lowell.

The recent studies of Richardson, Sheppard, Brues and Rosenau, all of Massachusetts, point strongly to the relation of the common biting horse fly (*Stomoxys calcitrans*) to the disease. Richardson in 1911 called attention to the fact that this fly was the only insect constantly present in the majority of houses where the disease had occurred. Brues and Sheppard carefully studied the conditions surrounding 88 cases of the disease in seventeen towns in Massachusetts. They concluded that "fly-time" marked the advent and spread of the disease which suggested the innocence of such insects as fleas, etc., which are less periodic in their appearance. Furthermore in towns where the disease occurred, unsanitary conditions, particularly those inviting fly breeding, were constantly present and the percentage of domestic animals, cows, pigs, horses, etc., averaged 5 to 20 times higher per human inhabitant than in towns where the disease had not occurred. It is interesting in this connection to recall the fact that in Norway and Sweden where so many of the extensive epidemics have occurred, the family stable and cow barn is an integral part of the house and conditions make for more than usually close contact of human beings and animals.

Finally, Rosenau showed that well monkeys put in cages with horse flies which had been allowed to bite other monkeys with the disease contracted a condition similar to the affected monkeys.

Our own Board of Health are preparing to repeat these experiments. In the meantime it is reasonably certain that the disease is also transmitted directly by acute cases and by carriers.

Incubation. The period has been variously estimated at from 24 hours to several weeks. It is probably very short, the variation being due to the length of time that the virus remains latent in the nasopharyngeal mucous membranes.

Immunity. Animals recovering from the disease produced by inoculation have shown a definite re-

sistance to re-inoculation (Flexner) but Stephens (*Intercolonial Med. Jr.*, Australia, 1908), and Eschner (*Med. Record*, Sept., 1910), report possible recurrences of the disease in the same patient.

No important evidences of antigen or antibodies have as yet been shown in the spinal fluid or serum.

Symptoms. When it is remembered that any part of the nervous system, brain, spinal cord, or nerves may be the seat of the trouble the variation of clinical type is better understood. Wickman divides these clinical types into eight forms, according to the location of the trouble in the nervous system. Of course combinations of types are common.

1. Spinal poliomyelitic.
 2. Ascending form (less often descending)
- Landry's paralysis.
3. Bulbar poutine form.
 4. Cerebral or encephalitic form.
 5. Ataxic.
 6. Polyneuritic.
 7. Meningitic.
 8. Abortive, in which no paralysis occurs but rather symptoms of meningeal, gastro-intestinal or general infection, hyperesthesia and pain.

These cases must all escape recognition except in epidemics, where according to Wickman they number from 15% to 50%. Frost in the Massachusetts and Iowa epidemics thought them 25% to 50% of the total cases. Anderson, 40% in the Nebraska epidemic, while Müller records an epidemic in Nauru, Oceania, of 700 cases where only 50 showed paralysis after three months.

As paralysis is not necessarily a symptom of the disease and may be so fleeting when present as to be of small consequence, we must first consider the prodromal symptoms and those present in these abortive cases. Hyperesthesia, irritability and sweating have marked the onset of most cases, fever being undoubtedly present at some time during the attack, however brief. It may reach 104° very soon after onset. There is often headache, joint pain, photophobia, constipation or diarrhea, retention or incontinence of urine, vertigo, choreiform movements, twitchings, convulsions, tremor and even coma. Skin eruptions are common in some epidemics and present a varying character. Lovett, Meyer and Strumpell report acute poliomyelitis in association with acute exanthemata, the latter reporting encephalitic form especially after measles. I myself have seen one possible similar case.

In the more serious cases paralysis intervenes and may occur in any part of the body. In these cases particularly the reflexes are important.

In early stages (irritative) the knee and ankle reflexes may be exaggerated but rapidly disappear, not necessarily at the same time. One leg, for example, may be spastic with exaggerated reflexes and the other flaccid with no knee reflex.

In pyramidal involvement a Babinski may occur and even ankle clonus.

Koenig's sign is of doubtful value, being often a varying condition in the rapidly changing state of the central lesions. The neck rigidity may be marked or absolutely wanting, the superficial re-

flexes present or absent or unequally affected in the same case.

Blood shows a leukocytosis as a rule and this may reach 34,000 (Morse).

Spinal fluid may be slightly turbid, but is clear as a rule. There are increased numbers of cells, chiefly lymphocytes in the later stage where the differential count shows a picture similar to tubercular or syphilitic meningitis. In the early stages the count may show a predominance of polynuclear forms which is exceedingly misleading.

Treatment; prophylaxis. It has been shown that the virus enters the body commonly through the air passages and is readily destroyed by such solutions as may be used harmlessly in these passages. Flexner in a verbal communication to the Association of American Physicians in 1911 recommends the use of mild alkaline sprays and menthol. The now well known fact that hexamethylenamine administered by mouth or in solution by rectum results in the appearance of formalin in the secretions and specially in the spinal fluid in a few minutes, offers the best reason for prompt administration of sufficient doses of this drug in suspected cases and as a prophylactic in exposed cases. Apart from a continuance of these remedies once the disease has established itself, the treatment in an acute stage is symptomatic. Remembering the skin eruptions and the changes noted in the liver, kidneys and spleen, attention must be paid to elimination and the state of the gastro-intestinal tract. I cannot believe Morse is right in the statement that after the paralysis hexamethylenamine does no good, "because the harm has then already been done." The best authorities, Wollstein, Flexner, Gay, Lucas and others have failed to find evidence of antigen in the spinal fluid of monkeys or human beings in various stages of the disease, or of antibodies in the blood serum of monkeys in acute stages of the disease, it seems reasonable to suppose that urotropin cannot interfere with nature's curative process and may limit the infection and its spread. If administered under supervision it can do no harm. Williams is authority for the statement that it "completely failed to arrest the inflammation in cord and meninges, although thoroughly tested in the Washington, D. C., epidemic this year" (1910). He fails to define "thoroughly," however, and the progress of symptoms from the cord involvement is dependent largely on local hyperemia and inflammatory edema so that his deductions seem badly taken. Until there is reason for not giving it, there seems no reason for its discontinuance.

Williams cites a case of the ascending form in which progress ceased after lumbar puncture and 1/3-1/4 gr. bichloride of mercury administered by hypodermic, five doses in three days. There are no reports of the benefits of injections of arsenical derivations, but in Elrich's summary of the benefits of salvarsan he shows its possible benefits in various acute infections, including malaria and small-pox.

In regard to the possibilities of an eventual serum treatment Flexner says, "it cannot be predicted how soon or whether ever at all such a form of specific treatment will be applicable."

The use of electricity and strychnia in the acute stage is obviously bad. Warm baths, splints for resting painful joints, protection from pressure of bed clothing for hyperesthesia are among the rational indications. To the orthopedist finally will go the majority of cases for resulting paralysis and the supervision of these cannot begin too soon.

Prognosis. Death occurs in 5% to 10% of severe cases—probably less than 5% of all abortive cases are recognized. Paralysis occurs in at least 50% to 90% of all reported cases and here, too, it may be that the smaller percentage was in epidemics where abortive cases were so frequently overlooked.

Paralysis, however bad at the beginning, may clear up entirely. Improvement generally takes place for six months, but no change for the better can be looked for after a year. Slightly paralyzed cases may not improve at all.

Resumé. What we know as acute anterior poliomyelitis is an acute infectious disease of unknown origin, occurring of late years in epidemics, small as compared to typhoid, diphtheria and scarlet fever epidemics but of about equal mortality. Like scarlet fever its virulence varies and while it is endemic in this state it rarely shows a strikingly virulent contagious tendency.

It is marked in abortive type by symptoms resembling nasal and tonsillar infection, with muscle, skin and joint pain, by gastro-intestinal symptoms, and finally in paralytic cases by flaccid paralysis of varying muscles in any part of the body.

Its recognition in the prodromal stage in the abortive type is almost impossible except in epidemics.

There is no specific treatment.

THE DIAGNOSIS OF TUBERCULOSIS OF THE SKIN.*

By D. FRIEDLANDER, M. D., San Francisco.

In the diagnosis of tuberculosis of the skin, we are confronted with a difficulty that we do not have to contend with in the gross pathological conditions of the same process in other organs of the body, inasmuch as we have, in tuberculosis of the skin, a variety of lesions which differ widely clinically, depending on the duration, intensity and evolution of the process, as well as the results of treatment. Not only in the clinical appearance does this wide variation occur, but also in the histological picture do we find the greatest latitude. On one side we will find cases in which the cutis and subcuticular tissue are thickly beset with typical tubercles, surrounded by inflammatory infiltration, with not infrequent tubercle bacilli; while, in other cases, we can only find an isolated tubercle, surrounded by fibrous tissue, and the most energetic search will not enable us to find a single bacillus. Since histopathological sections, showing the typical structure of the tubercle, are not a definite indication of tuberculosis, as similar infiltrations, showing giant cells, are found in other pathological entities, it has often been impossible to

make a definite diagnosis from a biopsy, unless the causative agent, that is, the tubercle bacillus, can be found.

Were every case, clinically and histopathologically, a typical one, there would be no difficulty in making a definite diagnosis, but, unfortunately, the picture varies considerably both in the microscope and in gross appearance, and it is in the border line cases that we must exercise every possible endeavor to classify the lesion.

Were it possible, in every case, to find the tubercle bacillus, the diagnosis would be easy, but, unfortunately, it is often impossible to demonstrate the organism, and when found, to state the fact mildly, the number is exceedingly few. In fact, owing to the great difficulties presented in finding the bacillus, which was probably due to the insufficiency of our methods of investigation, it was seriously questioned whether or not certain polymorphous forms of atypical skin lesions, in reality tubercular in origin, were due to the tubercle bacillus, per se, or due to toxins, originating in a tuberculous process elsewhere in the body, and circulating in the blood; and, on this basis, these lesions were designated tuberculides or toxi-tuberculides.

The paucity of tubercle bacilli in skin lesions is probably due to the comparatively small amount of vascularization of the skin and the large amount of connective tissue present, which furnishes a much poorer medium for growth than the parenchyma of the lungs and other highly vascularized organs. This can be well demonstrated by the increased rapidity of progress that takes place when a comparatively indolent form of lupus vulgaris passes over from the skin to the mucous membrane.

However, in consequence of our knowledge of newer methods and better technic in the search for tubercle bacilli, we find that many clinical entities, some formerly classed as tuberculides, and some, where even the designation of tuberculide was disputed, are definitely due to the tubercle bacillus, and we can demonstrate the organism therein.

The methods employed in the diagnosis of tuberculosis of the skin may be classified as follows:

1. Clinical.
2. Animal inoculation.
3. Tuberculin test.
4. Histopathological.
5. Tinctorial.

The clinical appearances of the various tuberculous lesions can hardly be entered upon in a paper of this character; they differ, in their various manifestations exceedingly, but all have the characteristics of torpidity, infiltration, ulceration, and are not infrequently accompanied by other tuberculous lesions.

Animal inoculation, when positive, is practically certain, but, owing to the sparsity of the organism, or the lack of vitality thereof, or some unknown reason, it is not easy to procure positive results, except in the most pronounced cases, which can usually be recognized clinically. Furthermore, the

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

method is inconvenient and one is compelled to wait some time for a report.

The tuberculin test, used in its various forms or methods, is frequently of service, but, in the great majority of cases the local reaction is lacking and a general reaction possesses little or no significance in the diagnosis of the lesion.

The histopathological examination, in the characteristic cases, presents the usual picture of tuberculosis elsewhere, characterized by the presence of an inflammatory infiltrate with central caseation and giant cells, but, without the tubercle bacilli, not only is this not characteristic of tuberculosis alone, but frequently, in the atypical forms, is absent or indefinite.

Finally, we have the tinctorial method, and the finding of acid-fast bacilli, staining with the Ziehl stain, showing a predilection for the giant cells, are, barring lepra, smegma and some other acid-fast bacilli, practically positive. Owing to the infrequency of the bacilli this has been extremely difficult, but within the last few years, two points have arisen which have considerably lightened the labor of finding the causative organism; they are the use of antiformin, and the discovery by Much, of Hamburg, of a Gram positive organism, which is resistant to antiformin, as only acid-fast organisms are, that occurs only in tuberculous lesions and discharges, occurring in conjunction with, but also without, the Ziehl staining tubercle bacillus.



The tissue to be examined is macerated with antiformin 10-15% and placed in an incubator for 8-24 hours, when the tissue will be digested, and then centrifugalized for 1-2 hours after adding alcohol 95% to the amount of 1/5 of the solution for the purpose of lowering the specific gravity of the solution and causing a better precipitate, and this also causes the material to adhere firmly to the slides. This procedure is carried out with all possible precautions to prevent the introduction of any extraneous organism.

The smear or section to be examined is then stained according to Much's modification of Gram's stain (see Much, *Unna's Studium Bd.*, xxi, p. 95. (vol. ii, *Unna's Festschrift*)) or, better still, the modification of Weiss (*Mitteilungen aus den Hamburgischen Staatskrankenanstalten Bd.*, xi, heft 9),

which stains, simultaneously, the Ziehl staining form of the bacillus and the Gram positive form. The method of Weiss is as follows:

1. Sol. A. Saturated alcoholic solution of methyl violet B. N 10cc.
Watery solution of carbolic acid 100 cc.
Sol. B. Carbo-fuchsin.
Solutions A and B to be combined, as used, in the proportion of 25% of A to 75% of B. This mixture is to be applied to the slide for 5 minutes over the flame, or 24-48 hours at room temperature.
2. Lugol's solution, 5-20 minutes cold, or heated until it steams.
3. Nitric acid 5% 1 minute.
4. Hydrochloric acid 3% 10 seconds.
5. Aceton alcohol until the color ceases to come off the slide.
6. Dry with filter paper.
7. Bismarck brown 10% 1 minute.
8. Wash and dry.

Cold staining is preferable to heating, and all stains should be repeatedly filtered before using, and the slides should be stained in the vertical position to avoid precipitate.

The Ziehl staining tubercle bacilli appear as with the ordinary Ziehl stain, while the Gram positive organisms of Much appear as a long, fine bacillus, the capsule of which is stained faintly red, containing 4-7 round, sharply defined granules, of varying size and dark blue color.

The Gram positive form is found in greater abundance than the Ziehl staining form (Hatano, *Berlin Klin. Wochenschr.*, 1909, p. 1694), and is demonstrable in all tuberculous lesions of the skin, as well as the so-called tuberculides (see author *British Journal of Dermat.*, Jan., 1912). Often, when the lesions show no Ziehl staining or Gram positive bacilli in section, they can be found in the antiformin treated smears, and the process is not too long or too difficult to be carried out in the average office. The question as to whether the Gram positive organism is a degenerated or a retrograde form of the Ziehl staining bacillus, of which it possesses all the morphological characteristics, is an unimportant one as long as we can confine its existence to tuberculous lesions, and this fact, together with the facts that it can be demonstrated in pure T. B. cultures, and in the peritoneal cavity of guinea pigs inoculated with pure cultures of T. B., practically demonstrates it to be what Much claims for it, a granular, Gram positive form of the tubercle bacillus, that does not take the Ziehl stain, as shown by the use of the Weiss method, which stains both forms simultaneously.

Thus we have the antiformin method, which dissolves the tissue, destroying all organisms that are not acid-fast, and enables us to find, more readily, the causative bacillus in tuberculous lesions, and the method of Much, which allows us to demonstrate a variety or condition of the tubercle bacillus, heretofore impossible.

In conclusion, it might be said that in the

diagnosis of tuberculosis of the skin, we must consider all factors, history, clinical appearance, animal inoculation, histopathological conditions and the tuberculin test, but, undoubtedly, the antiformin treatment of tissue, and the advent of the organism of Much have done more to clear up the diagnosis of obscure tuberculous skin conditions than all other methods combined.

SOCIETY REPORTS

THE CALIFORNIA ACADEMY OF MEDICINE.

The California Academy of Medicine held its regular meeting on Monday, November 25th.

The following scientific program was given:

1. Experimental and Clinical Notes on the Etiology of Diabetes Insipidus. Dr. H. A. Naffziger. Discussed by Drs. W. F. Schaller, W. W. Kerr, D. W. Montgomery, H. R. Oliver, A. J. Lartigau and H. A. Naffziger.

2. Enteroclysis in the Treatment of Weak Hearts. Dr. W. W. Kerr. Discussed by Drs. G. E. Ebright, J. B. Frankenheimer and W. W. Kerr.

3. The Course the Virus of Herpes Zoster takes to reach the Nerve Ganglion. Dr. D. W. Montgomery. Discussed by Drs. H. W. Allen, W. W. Kerr, W. F. Schaller, A. J. Lartigau, T. C. McCleave, L. S. Schmitt and D. W. Montgomery.

Refreshments were served at the close of the meeting.

CALIFORNIA NORTHERN DISTRICT MEDICAL SOCIETY.

The twenty-second annual meeting was held at Elks' Hall, Chico, November 19th, 1912.

The program was as follows:

Morning session, 10 o'clock:

Address of Welcome, Wm. Robbie, Mayor of Chico.

President's Annual Address, Dr. R. A. Peers, Colfax.

"Poliomyelitis from a Public Health Standpoint," Dr. Jas. H. Parkinson, Sacramento.

"The Health Insurance Acts in England," Dr. W. F. Snow, Sacramento.

"Vaccine and Serum Therapy in General Practice," Dr. D. H. Moulton, Chico.

Afternoon session, 2 o'clock:

"The Symptoms, Care and Treatment of Acute and Sub-Acute Alcoholism," Dr. R. E. Bering, San Francisco.

"The Treatment of Early Myocarditis," Dr. Geo. E. Ebright, San Francisco.

New officers elected: President, Dr. Dan Moulton, Chico; First Vice-President, Dr. G. H. Fay, East Auburn; Second Vice-President, Dr. Peery, Yuba City; Secretary, Dr. F. F. Gundrum, Sacramento; Treasurer, Dr. O. Stansbury, Chico.

There were about fifty physicians in attendance and the meeting was an unusually good one.

COOPER CLINICAL SOCIETY.

The Cooper Clinical Society held a meeting on the evening of December 3rd, at the Medical Department of Stanford University.

The following scientific program was given:

1. Milk Supply of San Francisco. Dr. W. H. Kellogg. Discussed by Drs. Langley Porter, Adelaide Brown and W. H. Kellogg.

2. Contribution of Certified Milk to Infant Feeding. (Illustrated by lantern slides showing the production of clean and of unclean milk.) Dr. Adelaide Brown. Discussed by Drs. A. B. Spalding, W. H. Kellogg, H. R. Oliver, Langley Porter and Adelaide Brown.

Refreshments were served at the close of the meeting.

GLENN COUNTY MEDICAL SOCIETY.

On November 21, a first meeting was called by the physicians of Glenn County for the purpose of organizing a county medical society. Dr. J. A. Randolph was chosen temporary chairman and Dr. F. M. Lawson temporary secretary. On November 27, another meeting was held at which time the society organized and adopted the constitution and by-laws recommended by the A. M. A. for county societies, and applied for affiliation with the State Society.

The Journal takes the greatest pleasure in extending to this youngest of our societies, sincere congratulations and the best of good wishes for a long and useful life. It starts out new with the New Year and may all its acts be worthy and profitable.

LONG BEACH PHYSICIANS' CLUB.

At the meeting of the club held in December the wives of the physician members were invited and the subject of the evening was an address by Dr. Stanley P. Black, of Pasadena, who discussed preventable diseases and public health matters generally.

MONTEREY COUNTY.

The officers elected to serve for 1913 by the Monterey County Medical Society are as follows: President, Dr. S. B. Gordon; Vice-President, Dr. A. M. Ritchie; Secretary, Dr. H. T. Crabtree; Treasurer, Dr. John Parker.

ORANGE COUNTY.

At the meeting for November, held Nov. 12, a paper on education in the hygiene of sex was read by Mr. R. J. Hamilton, secretary of the Orange County Y. M. C. A. The paper was discussed at length and a committee consisting of Dr. Ida Parker, Dr. John Wehrly and Dr. George Bryan was appointed to work with a committee of the Y. M. C. A. with the object of promoting the campaign for education on sex hygiene and instruction of children in a proper way on matters pertaining to sex.

SAN BERNARDINO COUNTY.

The November meeting was held on the 19th, at Redlands, and the program was made up of short papers on various phases of "Therapeutics," Drs. Tyler, Shreck, Folkins and Sanborn contributing. It was arranged that at the December meeting Mr. H. T. Morrow, the attorney for the State Society in southern California, should deliver a talk.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of November, 1912, the following meetings were held by the San Francisco County Medical Society:

Section on Medicine, November 5, 1912.

1. Presentation of Cases. Dr. Milton B. Lennon. A. Multiple Neurofibromata (von Recklinghausen's Disease). B. Syringomyelia.

Discussed by Drs. H. C. McClenahan, L. Eloesser and M. B. Lennon.

2. Congenital Heart Lesion. (With demonstration of case). (To be published in the Journal, A. M. A.). Dr. George E. Ebright.

3. Interauricular or Interventricular Deficiency of Septum? A Question of Diagnosis. Dr. W. W. Kerr. (To be published in the Journal, A. M. A.).

Regular Meeting, November 12, 1912.

1. Rational Psychotherapy. Dr. H. C. McClenahan. (To be published in California State Journal).
2. Psychotherapy from the Standpoint of the

General Practitioner. Dr. W. C. Alvarez. (To be published in the Journal, A. M. A.).

3. Psychotherapy in Sexual Neurasthenia. Dr. Victor Veckl. (To be published in California State Journal). Discussed by Drs. Carl Renz, J. W. Shiels, H. C. McClenahan and W. C. Alvarez.

Section on Surgery, November 19, 1912.

1. Exhibition of Cases. Dr. Stanley Stillman.
A. Adenosarcoma of Frontal Lobe.
B. Recurrent Carcinoma of Lip.

Discussed by Drs. J. Rosenstirn, E. Rixford, H. Sherman, G. C. Macdonald, S. T. Pope, L. Eloesser, R. Russ and S. Stillman.

2. Report of a Case of Facial Paralysis. Dr. J. H. Barbat. Discussed by Drs. Cullen Welty, J. Rosenstirn, E. Rixford, S. Stillman and J. H. Barbat.

3. Case Reports. Dr. Emmet Rixford.
A. Carcinoma of Colon.
B. Perforation of Small Intestine.
C. Congenital Dislocation of the Hip in New-born Infants.

Discussed by Drs. S. J. Hunkin, H. Sherman and E. Rixford.

Section on Eye, Ear, Nose and Throat, November 26, 1912.

1. Preliminary Report of Three Cases of Labyrinthine Lues. (Demonstration of two cases). Dr. H. B. Graham. Discussed by Drs. Cullen Welty, G. P. Wintermute and H. B. Graham.

2. Report of Two Cases of Cerebellar Tumor. (Demonstration of one case.) Dr. M. B. Lennon. Discussed by Drs. W. F. Blake, C. R. Bricca, G. P. Wintermute, Cullen Welty, Kaspar Pischel, H. B. Graham, Henry Horn, H. C. Naffziger, W. F. Schaller and M. B. Lennon.

3. Report of Cases Showing Acute Sinus Infection of the Field of Vision. Dr. A. S. Green. Discussed by Drs. Henry Horn and A. S. Green.

SAN FRANCISCO COUNTY DIRECTORS.

The following were elected Directors at the annual election in December:

Gibbons, Morton R., Bine, Rene, Ophuls, Wm., Kerr, W. W., Jones, Philip Mills, Alderson, Harry E., Terry, Wallace L., Kugeler, H. B. A., Porter, Langley, Cooper, Chas. M., Carpenter, F. B., Shiels, J. Wilson, O'Neill, A. A., Ebricht, Geo. E., Tait, Dudley, Frankenheimer, J. B., Spencer, John B., Hyman, Sol, Lennon, Milton B., Oliver, Harry R., Beasley, S. O.

SAN LUIS OBISPO COUNTY.

On December 7th the San Luis Obispo County Medical Society held its annual meeting and elected the following officers to serve for the present year: President, Dr. H. M. Cox; Vice-President, Dr. P. K. Jackson; Secretary, Dr. C. J. McGovern; Delegate to the State Society, Dr. H. M. Cox.

TULARE COUNTY.

The Tulare County Medical Society held its annual meeting at Lindsay on December 10th, at which time it was decided to hold all future meetings, unless otherwise voted, at Lindsay, as being the place most easily reached from all parts of the county. The following officers were elected for 1913: President, Dr. J. B. Rosson; Vice-President, Dr. C. M. White; Secretary, Dr. A. W. Preston.

YOLO COUNTY.

The Yolo County Medical Society held its annual meeting in the rooms of the Oaks Club on the evening of December 3rd. The officers for the coming year were elected as follows: President, Dr. H. D. Lawhead; vice-president, Dr. Chester Fairchild; secretary-treasurer, Dr. F. L. Newton. A supper was served after the meeting.

NEWS NOTES FROM NEWSPAPERS.

(Note:—This department was omitted in the last issue on account of lack of space and therefore some of these notes may seem to partake of the nature of "cold storage" material.)

Anthrax, one case of it, appeared in Lake county in October.

Sutter Creek is reported to have several cases of diphtheria.

Stockton has had a mild epidemic of trachoma in one of its schools.

Merritt Hospital, Oakland, is to build a new brick dormitory for its nurses.

Red Bluff had a fatal case of poliomyelitis in the latter part of November.

Poliomyelitis caused one death in Santa Clara late in the month of October.

Placer county has a new health officer in the person of Dr. J. S. Wheeler.

Napa county has reappointed Dr. R. F. Taylor as county physician for the coming year.

Dr. and Mrs. W. E. Alumbaugh celebrated their golden wedding at Napa on November 3rd.

The Sonoma county grand jury has condemned the buildings of the Sonoma county hospital.

Oxnard is to have a new hospital that will be in every way up-to-date and will cost about \$60,000.

Red Cross stamps to the number of about a million were disposed of in this State during December.

Los Angeles public schools are to be thoroughly investigated in regard to their sanitary condition and requirements.

A navy medical reserve corps, similar to that of the army, has been suggested by the surgeon general of the navy.

Dr. A. H. Wright, sentenced to 10 years for abortion, has been allowed his liberty on \$20,000 bail pending an appeal.

Monrovia has an energetic health officer, Dr. C. D. Gaylord, who refuses to resign or be put out for doing his duty.

A case of hydrophobia occurred in Colusa in December; but never mind; let us not annoy the poor dogs with muzzles!

Merced county society, through its president, has caused the arrest of a "Dr." Sampson for practicing medicine without a license.

Stockton's idea of having a free clinic for the destitute poor among its school children, seems to be working out very well.

The Incurables Home of the King's Daughters of Oakland was dedicated on November 24; it will accommodate some 50 patients.

Los Angeles has opened a school for mothers where women can be given full instruction as to the care and feeding of infants.

Health certificates as a pre-requisite to marriage, are being advocated in various parts of the state, but particularly in the southern part.

A malpractice suit for \$25,113 against Dr. J. R. French, of Los Angeles, was dismissed on motion of the attorney for the State Society.

Long Beach draws the 1912 prize for "lions;" this particular "lion" is none other than Dr. H. S. Tanner of lasting and fasting fame.

Chenoweth, a notorious advertising quack, has escaped trial for obtaining money by false pretense through the death of the patient.

Vaccination in Oakland is to be enforced so far as all teachers and other employes are concerned and a rigid examination of all pupils will be made.

Dr. N. E. Richardson, formerly of Salinas, has purchased a large ranch in Sutter county and is to become a farmer in real earnest—on a large scale.

The King county superintendent of schools, Mrs. N. E. Davidson, is strongly urging upon the county the systematic and careful examination of all school children.

At the Kenilworth Sanitarium, Illinois, Dr. H.

W. Powers has resigned as superintendent and Dr. Sherman Brown has been appointed to take his place.

Dr. Henry S. Orme, one of the oldest members of the State Society, died in Los Angeles on November 30. An obituary notice will appear in a later issue.

The State Commission on Tuberculosis held a meeting in San Francisco on the 14th of December, preparatory to making its report to the next legislature.

Dr. P. G. Cotter, of Los Angeles, was very seriously injured by his automobile, which was struck by a car and turned over upon him, crushing his ribs.

San Francisco is too poor to support a proper board of health and so it abandoned the inspection of school children and a few other public health activities.

Dr. L. Lambert of Sacramento is declared by the federal authorities to be one of the boldest abortionists arrested in their recent raids, according to newspaper items.

Yuba county has made a change in the superintendent of its county hospital and Dr. Van Male no longer holds that position which has been taken by Dr. Everett Gray.

San Joaquin county has a new health officer in the person of Dr. H. C. Peterson, who has been appointed to take the place left vacant by Dr. R. B. Knight's resignation.

Bakersfield is bestirring itself in the health line and has just appointed an active secretary and inspector who promises to really do things in the way of cleaning up. Good work.

Orange county society has appointed a committee to work with a similar committee of the Y. M. C. A. for the purpose of planning a campaign of education in sex hygiene.

The California Hospital, Los Angeles, is to reconstruct all of its buildings, making them fire-proof, as soon as the work can be done without interfering with the running of the hospital.

Fresno was visited by Dr. Hoisholt who delivered a lecture under the auspices of the University Club on the Relation of Insanity to Crime. Judge H. J. Austin participated in the discussion.

Open air schools, being the common sense thing, especially in California, seem to be but slowly gaining popular favor; it is astonishing how slowly people will take to a new idea, particularly if it is a sensible one.

Typhoid fever has been practically driven out of the army through vaccination; only eleven cases have occurred in the past year. Most of the cases were among recruits who had not received the prophylactic treatment.

Newspaper science is wonderful! Referring to the recent surgical congress in New York, one of our papers says: "Sewing machines are used by some surgeons in uniting tissue in the same manner that clothes are sewed."

"Dr. Albert Abrams of San Francisco" says the Examiner "has succeeded in procuring the convention of the American Association of Spondylotherapy for 1915." Fine! That means that Dr. Abrams has procured himself for 1915.

The State blind institution is in for the investigation which occurs about so often; the job of running an institution for the blind is not at all a pleasant one and probably it will be found that the charges are without substantial foundation.

Redding has had a lot of trouble from smallpox and the friction caused the resignation of all the members of the board of health except Dr. Saylor. The measures proposed by the health board would "hurt business," same old story!

The old melodramatic substitution of a living child for a dead one in order to preserve an heir for an estate has filled much space in California newspapers for some time past. It is reported that the investigation of the case has not been finished.

Psychopathic homes, hospitals or receiving stations will be asked for from the next legislature, one to be located in Los Angeles and one in San Francisco. Some day we may really see the State treat its insane citizens as sick persons and not as criminals.

Dr. E. O. Sawyer, county health officer of Los Angeles county was given a banquet—and a gold badge—by many physicians and friends, on November 22nd. Los Angeles is certainly to be commended for its high development of the banquet idea.

A very valuable little catalogue of medical books published by all publishers in this country, has recently been issued by the W. B. Saunders Co., Philadelphia, and they will gladly send a copy to anyone asking for it; it is worth asking for, if you ever read books.

San Jose is the seat of considerable trouble in regard to lodge practice; most of the physicians in the county society object to the work (very naturally!) and they are trying their best to get all the doctors in the community to be sensible and refuse to do the work.

Dr. O. D. Hamlin, who acquired a game knee while East last summer, has invented a new way of shooting ducks. He sits on a piano stool, in a blind, and thus orientates himself to correspond with the migratory duck with the least amount of effort and personal disturbance.

The tuberculosis commission, it is said, will recommend to the legislature that each county, or groups of counties, when more convenient, be compelled to maintain a tuberculosis sanitarium for the care and treatment of its tubercular citizens. How the counties will fight it!

Fresno is having a little difference of opinion between its city health officer and its county health officer as to whether or not there are a few cases of poliomyelitis in the county. Dr. Aiken, the county officer, seems to have the better of the argument; there are no cases in the city of Fresno.

Mr. H. T. Morrow, our attorney for southern California, has been delivering a number of public lectures on the "Fight Against Criminal Practices." It is to be hoped that he can arouse some little interest on the part of the laity, for unless the layman wants these laws enforced, they will be dead letters.

Abortionists are uneasy; the federal government gathered up quite a few of them recently; but probably just as samples, for there are lots that were not arrested. Among our distinguished colleagues gathered in the net were Drs. J. F. Wetzel and H. W. Rais of San Francisco and Dr. E. D. Curtis of Oakland.

"Dr." Goscinsky, a quack of Castroville, was convicted of practicing medicine illegally, but on motion was given a new trial because the complaint was defective; it did not state that he was practicing medicine without a license, but merely that he was practicing medicine! What has commonsense to do with a legal technicality?

Los Angeles has many very fine characteristics, not the least of which is its firm belief in the beneficial effect of banquets. On December 13th some 80 physicians of that community tendered a banquet to Dr. E. R. Smith upon the occasion of his retiring from active practice. Dr. Ellis was the chairman and Dr. Norman Bridge the toastmaster.

The Fresno "Mirror," referring to abortionists and their use of the advertising pages of newspapers, makes this ingenious remark: "We suggest that the next legislature pass a law making it a felony for newspapers in this state to publish the advertisements of such doctors and drug concerns." Bless you, dear "Mirror," don't you know that such bills have been presented in nearly

every legislature for twenty years and have been defeated—by the newspapers? They want the dirty money.

BOOK REVIEWS

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. October, 1912. Published Bi-monthly by W. B. Saunders Company, Philadelphia and London.

Contents.

Remarks on Anesthesia Made at Clinic.
Nephrolothiasis.
Cholecystitis.
Gastroduodenal Ulcer—Gastro-enterostomy.
Appendiceal Abscess.
Colonic Adhesions Simulating Recurrent Appendicitis.
Exophthalmic Goitre.
Traumatic Lesion of Brain.
Trifacial Neuralgia.
Tumor of Spinal Cord.
Chronic Mastitis.
Recurrent Ovarian Cystosarcoma.
Retroversion of Uterus.
Rectocele and Perineal Laceration.
Ununited Fracture, Shaft of Right Humerus.
Osteitis Fibrosa Cystica of Right Humerus.
Ankylosis of Left Elbow.
Ankylosis of Right Hip-Joint.

A Student's Manual of Surgical Diagnosis. By George Emerson Brewer. Quarto. Cloth, pp. 40. D. Appleton & Co., New York and London, publishers. Price not stated.

There is a real want for a handy and practical compend of the methods of surgical diagnosis. This want Brewer's book does not fill, nor does it pretend to do so; its title is misleading, it is rather a student's guide for college courses in surgical differential diagnosis than a manual of diagnosis. It consists of a short exposition of the author's ideas on the teaching and practice of the differential diagnosis of surgical affections, illustrated by a number of case reports and discussions, and of 16 charts classifying surgical disorders. Four of these are general, classifying injuries, deformities, inflammation and new growths, respectively. The remaining twelve are regional and classify the surgical diseases according to localization. The book is evidently intended as a supplement and guide to Brewer's class-work at Columbia University. It should prove itself useful not only to his pupils, but to other students—and their teachers. L. E.

Obstetrics. A text-book for the use of students and practitioners. By J. Whitridge Williams, M. D., Professor of Obstetrics, Johns Hopkins University. Third edition; cloth; pp. 977, with 16 plates and 668 illustrations. New York and London: D. Appleton & Co. 1912. Price \$6.00.

This excellent text-book on obstetrics appears in practically the same style and size as the previous editions. Changes have been made to include the more recent studies of early human ova, of the indications for pubiotomy and Caesarian section, of pernicious vomiting of pregnancy, of the frequency of contracted pelvis in Baltimore and on the treatment of labor complicated by contracted pelvis. The bibliography at the end of each chapter has been extended and brought up to date.

While the text ranks equally high with the best American works on obstetrics and is an ideal reference book for both students and practitioners, it falls short of meeting the needs of the under-graduate student by being too comprehensive. The book will be best appreciated by young graduates entering on a training for special work in ob-

stetrics. The inspiration to get away from text-books and to dig in the library for original articles is met with in every chapter. The chapters on the toxemias of pregnancy are interesting and impressive and indicate a considerable amount of original work. However, it is in this section that in future editions one will probably note the most changes. The chapters dealing with the operative care of abnormal labor are full of good, sensible and sound advice for the general practitioner. The book is a credit not only to the author, to his clinic and to his assistants, but is a high tribute to the teacher of Williams—William H. Welch.

ALFRED BAKER SPALDING.

The Principles of Human Physiology. By Earnest Henry Starling, M. D. (London), F. R. C. P., F. R. S., Jodrell Professor of Physiology in University College, London. Octavo, 1423 pages, with 564 illustrations, some in color. Cloth, \$5.00 net. Lea & Febiger, Philadelphia and New York, 1912.

This recent book by the Jodrell Professor of Physiology in the University College, London, is fully up to the high standard set by such books as those of the great English physiologists, Foster and Schaefer. When the thoroughly trained English scientist writes a text-book or a monograph, it is usually an admirable and comprehensive piece of work. The general attitude of Prof. Starling towards medicine makes his book unusually acceptable and valuable to the physician. This is indicated by the following statement in the preface: "The only foundation for rational therapeutics is the proper understanding of the working of the healthy body. Ignorance of physiology tends to make the medical man as credulous as his patients and almost as easily beguiled by the specious puffings of the advertising druggist."

The general excellence of this new physiology is so marked that it is with difficulty that one selects special subjects for comment. The chapters upon the properties of colloids and that upon ferments with the methods of studying them are particularly good. The value of Gaskell's Charts of the brains of various animals in making the organization of the nervous system clear is recognized and good use is made of them. A more complete discussion of the autonomic nervous system and of the work of McKenzie and Head upon skin areas of hypersensitivity in visceral disease would have been appreciated by the clinician. The addition of the chapter on immunity under the heading of "Chemical Mechanism of Defense" is indicative of the broad field covered by the modern physiologist. The relations of chemistry and physiology are well brought out, the illustrations unusually well chosen and far superior to those of the monumental work of Foster. It is a pleasure to see interpreted in a text-book of physiology many of the more recent and important contributions that have come to the subject through the clinician and medical laboratories. The discussion of the accommodation of the eye and of intraocular tension, the work of Cannon and Hertz on Roentgen Ray in the motor functions of the digestive tract, the work of Carlson on the causation of the heart-beat and the interpretation of the electro-cardiogram are all of especial interest. It seems certain that this book by Prof. Starling will prove to be as valuable to the English speaking medical world as his physiological work and laboratory have been to his own university.

R. L. W.

"The Mosquito—Its Relation to Disease and Its Extermination." By Alva H. Doty. Published by D. Appleton & Co., N. Y. and London, 1912.

The author of this small volume has attempted to present the more elementary facts concerning this insect in the simplest possible manner. In this

attempt to greatly simplify the subject and to group all mosquitoes into two classes, namely "Inland" and "Salt Water Swamp" mosquitoes, he has been forced to sacrifice some degree of accuracy. In most instances, for a popular volume of this character, the feature mentioned is not of serious practical importance, but on the other hand, when this brevity leads to the apparent but erroneous inference that various species of *Culex*, *Stegomyia* and *Anopheles* (all grouped under his classification as "Inland" mosquitoes) have about the same breeding places, the purpose of the book, to encourage the extermination of the mosquito, is defeated. It is probable that this volume might be profitably utilized in the upper grades of our grammar schools and thus diffuse more knowledge of the importance of this insect among the pupils of such institutions. It is hardly conceivable, however, that any adult seriously interested in the subject would care for knowledge of as superficial a character as this book furnishes. The writing is too popular and elementary to be properly regarded as forming a part of medical literature.

Diseases of the Stomach, Intestines, and Pancreas.

The New (2nd) Edition, Enlarged. By Robert Coleman Kemp, M. D., Professor of Gastro-intestinal Diseases, New York School of Clinical Medicine. Second edition, revised and enlarged. Octavo of 1021 pages, with 388 illustrations. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$6.50 net; Half Morocco, \$8.00 net.

This is a book of 1000 pages which contains an enormous amount of information on the subject. In fact, the main fault we have to find with the book is that too much has been included. Like so many other clinicians who write books of this type, Dr. Kemp should sit at the feet of Stevenson, who told a young writer that his success would be assured if he could only learn what to omit. So many authors lose sight of the fact that we are going to turn to them, as we do to a consultant—not to learn what every one through the ages has used for a disease, but what this particular master whom we know and respect has honestly found to be of service. We wish that medical authors would briefly outline their usual treatment, if possible telling frankly what they think of its efficacy, and then refer us to a separate chapter—a sort of "junk-room" where we could find enumerated all those measures which, having once been rushed into print, are handed along from book to book.

On page 397, under the head of "Treatment of Acquired Stenosis of the Pylorus," we find mentioned in the following order: Vibratory massage, electricity, olive oil, Rose's plaster belt (to be worn for five weeks and then replaced, the patient apparently to give up the custom of bathing in the meantime), diet (sanatogen! tropon! and comatose!), lying on the right side, lavage, alkalies, belladonna, thiosinamin, and, finally tucked away at the foot of the page—"the best physician for these cases is the surgeon."

The article on gastric ulcer is on page 268 where pyloric stenosis is barely mentioned amongst the indications for operative treatment, and then only after thirteen pages of medical suggestions. The article on duodenal ulcer is found 420 pages farther on, and here at last we find that "all cases of organic stricture are surgical and gastroenterostomy is indicated." In a book for the general practitioner such points should be salient and not hidden away in a mass of therapeutic rubbish. A great deal of space could have been saved by combining the three articles in one. There the author's favorite treatment could be outlined as follows: "The treatment of organic stricture of the pylorus is surgical." Note—if the patient refuses operation, either withdraw from the case or turn to chapter—for remedies with which to amuse him till he either starves to death or dismisses you.

A great deal of repetition in the matter of treatment could be avoided by having one good chapter on dietetics, another on overnutrition and the handling of so-called nervous disorders of the stomach and intestine, another on the care of ulcer, stomach, duodenal and pyloric; and another, as suggested, for electricity, vibrations, hydrotherapy, phototherapy, mechanotherapy, etc. Dr. Kemp has carefully collected them all. The phrase "Sanatogen, preferably flavored, tropon and somatose" has apparently been put in all over the book with a rubber stamp. The author's faith in Sanatogen is so great that on page 165, we read that milk must be peptonized for nutrient enemas but Sanatogen, which he doesn't seem to know is really dried cottage cheese, is apparently so nutritious that it can be digested without such preliminaries!

Apparently Dr. Kemp's faith in nutrient enemata has been untouched by the doubts of modern physiology. Those who know that proteid is broken into its amino-acids only after partial splitting by pepsin, further cleavage by trypsin and ultimate resolution by erepsin and bacterial ferments; those who know that only amino-acids can go through the intestinal wall, and that the body cannot use some of them in the absence of others; those who know that outside of the cecum the colon absorbs very little and contains no ferments of its own, and those who weigh their patients regularly, will have very little hope of maintaining a nitrogenous balance with raw eggs, brandy, peptonized milk, sanatogen and peptonoids. While such enemas may keep the patient amused and at the same time give him a certain amount of water, salts and possibly sugar, in many cases the physician should recognize starvation as such.

The article on physiology is inadequate and naturally its teachings do not permeate the book as a leaven and inspiration. In spite of the work of Wohlgemuth and a score of others on diastase, we read on page 487 that, "normally trypsin and diastase are absent in the stools."

The X-ray is not given the prominence it merits, now that it is revolutionizing our methods of diagnosis and giving us a new physiology. We were inclined to admit his contention that it is expensive and that it must be used by experts, until we found exploratory laparotomy advocated in lieu of accurate diagnosis, and that without mention of expense and danger.

When we see so little space given to the important things, we are jealous of the fifty-three pages on amebic dysentery, typhoid and Brills disease, and the thirty-five pages on intestinal parasites. As evidence of the poor apportionment of space in the book, we mention the fact that on page 443, that bug-a-boo of the stomach specialist, heart-burn, is given eight lines; and flatulence gets two and one-half pages.

The references are often very gossipy and many of them have no place in the book. For instance, on page 545, we read: "Kirchendall states to Morris that Stockton of Buffalo has for years asserted that the colon bacillus was the cause of many cases of choroiditis!" On page 459, he says that in arthritis deformans, he found hyperchlorhydria in one case, and Einhorn found achylia in one case. Under the circumstances, we think we would delay our report on the subject.

We believe that if the author in a subsequent edition will go through the book and blue pencil these things, re-arrange the material and accentuate his own observations, it will be a most valuable work.

W. C. A.

Muscle Spasm and Degeneration in Intra-Thoracic Inflammations and Light Touch Palpation. By Francis Marion Pottenger, M. D. C. V. Mosby, publisher, Metropolitan Bldg., St. Louis, Mo. Price, \$2.00.

The monograph possessing this comprehensive title consists of about 100 pages of text and is, as

the author tells us in the introduction, with a few changes, a translation of his article which appeared in a recent number of the "Beitrage zur Klinik der Tuberculose."

It would be impossible in the space at the disposal of the reviewer to do justice to a work representing the results of the observations of such a painstaking investigator as Dr. Pottenger in the recognition of intrathoracic inflammations. Certainly when so little is written in English textbooks, and for that matter so little taught in American medical schools, regarding the physical signs of incipient lung tuberculosis, any aids of demonstrated value to the early recognition of this disease must be hailed with gratitude by the profession. A valuable sign has been brought forth by the author in the recognition of muscle spasm and subsequent muscle degeneration. This fact is attested by the experience of the reviewer and others in this country and in Europe, who are daily making use of the sign in diagnosing pulmonary inflammatory conditions. Muscular spasm is defined by the author as "the motor expression of the inflamed lung and we accept it as being produced by the inflammation in the lungs sending impulses through the sympathetic nerve fibers to the cord where they impart to the cells of the segment on the side of the involvement a certain amount of irritability, which shows itself peripherally, through the posterior horn, in changes in sensation as described by Head, and, through the anterior horn as muscular spasm and degeneration as here described." It must be admitted that this definition does not completely explain the phenomenon observed, for the spasm and degeneration does not follow any particular nerve distribution, but rather involves the musculature immediately overlying the diseased area. Where an entire muscle or several muscles are supplied by one nerve, only a part of the muscle or one of the group may be in spasm, while the rest show no change. The irritation seems rather to follow certain fibres of the nerve. Degeneration of muscle, atrophy of the overlying skin, and disappearance of the subcutaneous tissue has been noted by other authorities as evidence of early tuberculosis, but as Pottenger points out, these signs are evidence of chronicity rather than early lesion, as old quiescent foci with renewed activity are too frequently mistaken for incipient lesion.

The chapter on lagging as a sign of apical involvement is interesting in that the author attributes its cause more to the muscular spasm interfering with the free movement of the chest wall, rather than to the presence of infiltration interfering with elasticity of the lung. As lagging is frequently a very early sign when probably there is insufficient infiltration to perceptibly affect the elasticity of the lung, the author's explanation would seem to be the more plausible one. It is to be regretted that the chapter on this important sign is so brief, for it is a sign usually neglected in text books, and, when mentioned, usually confined with limited respiratory excursion—quite another sign.

Flattening of the chest wall on the affected side is also considered by the author to be due to the shortening which takes place in muscles which have undergone prolonged spasm and subsequent degeneration. Schematic drawings are presented to elaborate and elucidate his argument, and the fallacy of the older explanation of flattening, namely, the effect of atmospheric pressure forcing the bony thorax to contract in order to occupy the space formerly occupied by lung tissue which has undergone contraction or destruction, is most convincingly presented.

The last chapter, "Light Touch Palpation," is a discussion on the possibility and practicability of delimiting normal organs and of diagnosing diseased conditions in organs by very light palpation. The comparative value of this method with

percussion and auscultatory percussion are reviewed. The reviewer believes that examiners generally will be loth to replace percussion by the method of palpation here advanced. Yet it must be admitted that the resistance felt by the percussing finger has gradually assumed relatively greater importance to the careful examiner than the note elicited by the percussion stroke. In other words, percussion has become a method of palpatory percussion. The value of any of the methods for eliciting physical signs is in direct proportion to the skill developed in the examiner by the constant use of his particular methods and certainly Pottenger is to be congratulated on the accuracy of his findings by the method of light touch palpation as he has developed it. While its value in examination of the abdomen has been generally recognized, he has demonstrated its usefulness even through the bony walls of the thorax.

The author has been frank throughout the book in admitting doubtful points. He admits that all his observations are not entirely new, but justly claims that no one heretofore has suggested their diagnostic importance. He has also pointed out that these motor, sensory and trophic changes in the soft parts, and also the trophic changes in the cartilage and bone, have had a great deal to do in changing the shape of the thorax, and particularly producing the phenomena which have been pointed out by Freund as being predisposing causes of tuberculosis.

The cuts illustrating the text are excellent reproductions from Spalteholz. The book is well printed, the arguments are clearly and logically set forth, and will be read with profit by all who wish to improve their methods of physical diagnosis.

G. H. E.

APPRECIATION OF THE TELEPHONE.

Tinkle, tinkle, little bell—
How I wish you safe in h--!
Central on the job all night,
Doctor sleeping sound and tight.
"Baby's got the stomach ache,"
Mama shaking like a quake;
Papa running here and there,
Barks his shins upon a chair!
Doctor scooting through the air;
Lights go out; gas all gone;
Motor dead a mile from home;
Doctor cussing like a fiend
Baby, motor, gasoline!!
(He arrives.)
Baby sleeping in his bed;
Papa's arm round mama's head.
Nothing happened after all!
Doctor on a useless call!
Tinkle, tinkle little bell!
I don't hear you. Go to h--!

—Robert B. Dempsey

SANITARY SCIENCE AT TULANE UNIVERSITY, NEW ORLEANS, LA.

By W. H. P. CREIGHTON, Dean College of Technology.

Three series of courses in Sanitary Science were started at Tulane this session. These courses are for medical, science and engineering students specializing in sanitation. The medical graduate in this course expects to become the health officer on Boards of Health; the science graduate becomes the expert on sanitary biology, and the engineering graduate will eventually design, build and care for structures for sanitary purposes.

To give courses in sanitary engineering, a university must have departments in medicine and engineering on one campus. Many universities either have no medical department or that department is located in some distant city. Tulane is fortunate

in this and many other respects. The engineering and sanitary laboratories are on the same campus; the school of tropical medicine is located at Tulane, the charity hospital clinics having over one thousand beds—with its consequent wealth of medical material—is at its service.

Tulane is an endowed institution, having over one thousand students. It is free of political or religious control. It was one of the first institutions to comply with the Carnegie Foundation entrance requirements.

In the senior class of the sanitary engineering course instruction will be given in water supply, framed structures and reinforced concrete construction by Professor Donald Derickson, recently professor in post-graduate courses in reinforced concrete at Cornell University. Instruction and laboratory work in sanitary microbiology will be given by Professor Creighton Wellman and his assistants in the School of Tropical Medicine.

OUR MEDICAL DEFENSE.

To the Medical Society of the
State of California.

Gentlemen:

I wish to thank the Society for the manner in which it looked after the defense of the malpractice suit brought against me by J. F. Beene who suffered from a delayed union of the radius and ulnar of the left arm. Your defense was thorough and every precaution was taken for the protection of my professional reputation as well as my finances and no corporation, insurance company or individual could have more surely or successfully cared for and protected my interests.

I wish it were possible for the whole profession to realize the importance of having the Society back of them, as I do. Any physician is just as liable to have a suit brought against him as I was and no better protection can be had than I got in my recent trial.

Very truly yours,

N. T. ENLOE,
Chico, Calif.

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for the appointment of First Lieutenants in the Army Medical Corps will be held on January 20, 1913, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the Surgeon-General, U. S. Army, Washington, D. C. The essential requirements to securing an invitation are that the applicant shall be a citizen of the United States, shall be between 22 and 30 years of age, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

The examination in subjects of general education (mathematics, geography, history, general literature and Latin), may be omitted in the case of applicants holding diplomas from reputable literary

or scientific colleges, normal schools or high schools, or graduates of medical schools which require an entrance examination satisfactory to the faculty of the Army Medical School.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the Adjutant General at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present thirty-five vacancies in the Medical Corps of the Army.

IMPROVEMENTS IN THE NATIONAL PARKS IN CALIFORNIA.

The Department of the Interior proposes to spend \$268,403 in the national parks in California during the fiscal year ending June 30, 1914, if the amount requested by the Secretary of the Interior is appropriated by Congress. This is an increase of \$170,903 over the appropriation for the current fiscal year. The increases requested are as follows: Yosemite National Park, from \$80,000 to \$233,703; Sequoia National Park, from \$15,550 to \$29,900; General Grant National Park, from \$2,000 to \$4,800. The principal items for each park are as follows:

Yosemite National Park: Improvement of Big Oak Flat Road from Gentry's to the floor of the valley in order to make it safe for automobiles; improving and widening road from Camp Ahwanee to Yosemite Village; concrete bridge over Merced River near El Capitan; extension of road-sprinkling system from Yosemite Village to Happy Isles and Camp Lost Arrow; improvement of power plant; extension and improvement of water-supply system; improvement of trails to Yosemite Falls, Eagle Peak, Glacier Point, Nevada Falls, Tittill Valley, and Lake Vernon; construction of new trail from Yosemite Point via White Wolf, Harden Lake, and Smith Meadows, to junction with Hetch-Hetchy trail on Poopenau Meadows; sprinkling El Portal-Yosemite road and general improvement and maintenance of roads, trails and bridges.

Sequoia National Park: Widening Grant Forest road; experimental oiling of 3 miles of road; extension of telephone lines, stairway on Moro Rock; general repairs and administration.

General Grant National Park: Three-fourths of a mile of new road in order to give separate route for automobiles; water-supply system for tourist camp; fencing camp grounds.

For the development and care of the national parks the Secretary of the Interior has asked Congress to appropriate the sum of \$733,014, an increase of \$505,464 over the appropriations for the current fiscal year. The national parks constitute ideal recreation grounds for thousands of people, but their development and use are seriously retarded by the lack of adequate roads and trails, and until sufficient money is appropriated for beginning a comprehensive plan of development the parks will fall far short of rendering the important public use for which they are intended. It is the intention of the Department to make the principal places of interest in the parks more accessible, to render traveling more comfortable by sprinkling the roads throughout the dry season, and to guard the health of the traveler by the installation of proper water supply and sewerage systems. The responsibility for the future conduct of the national parks must rest with Congress, but the Department feels that the financial needs of these reservations should be clearly presented to Congress in the annual estimates. A comprehensive list of books and magazine articles on the national parks has recently been issued by the Department of the Interior and may be obtained on application.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-Official Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

Casoud Diabetic Flour is a mixture of the albuminoids of wheat (gluten) and of milk (casein) composed of approximately: proteins 84.5, fat 1.4, mineral matter 2.5, cellular fiber, etc., 0.7, water 10.8. Employed in cases where carbohydrates are contraindicated, such as diabetes, amylaceous dyspepsia, etc. Thos. Leeming & Co., New York. (Jour. A. M. A., Nov. 2, 1912, p. 1622.)

Paratophan is methyl-atophan, 6-methyl-2-phenyl-quinolin-4-carboxylic acid, $\text{CH}_3\text{C}_6\text{H}_4\text{N}.\dot{\text{C}}_6\text{H}_4\text{COOH}$, 6:2:4 = $\text{C}_{17}\text{H}_{15}\text{O}_2\text{N}$. Its action, uses and dosage are the same as atophan. Paratophan tablets contain paratophan 0.5 gm. (7½ grains). Schering & Glatz, New York. (Jour. A. M. A., Nov. 2, 1912, p. 1623.)

Phenoco is a preparation of coal-tar creosote and higher phenol-homologues in soap solution. It is stated to contain 8 per cent. coal-tar creosote (obtained by the destructive distillation of coal and containing 15 per cent. cresol but no phenol), 62 per cent. higher phenol-homologues (phenols containing two or more methyl groups) and 30 per cent. soap. It is miscible with water forming an emulsion. It is an anti-septic and germicide, being in the latter respect 15 to 16 times as strong as phenol, and for mammals about one-half as toxic as phenol. It is used in dilutions of 1 per cent. to 5 per cent. or higher. The West Disinfecting Co., New York. (Jour. A. M. A., Nov. 9, 1912, p. 1717.)

Tuberculins represent the toxins of the tubercle bacillus. They may be in the form of a filtered extract of the bacilli or may be composed of the pulverized insoluble substance of the bacilli themselves. In the latter, or emulsified form, tuberculin is known as tubercle vaccine, and might be classed with the "Bacterial Vaccines." Supplied in the following forms:

Tuberculin Bacillen Emulsion, Tuberculin B. E., is a suspension of ground tubercle bacilli containing 5 mg. of the solid tubercle substance to each Cc.

Tuberculin B. E. Bovine is made in the same manner as the foregoing, except that the tubercle bacillus used is of the bovine type.

Tuberculin Old (Tuberculin O. T.), preserved with trikresol in 1 Cc. vials.

Tuberculin O. T. Bovine is made by the same process as the foregoing except that the organism used is of the bovine type.

Tuberculin Bouillon Filtrate is preserved with 4-10 per cent. trikresol in 1 Cc. vials.

Tuberculin B. F. Bovine is made in the same manner except that the bovine type of tubercle bacillus is used.

Tuberculin T. R., Tubercle Residue, is a suspension of 2 mg. of tubercle substance in each Cc. of the finished product.

Tuberculin Ointment (Moro Ointment) is a mixture of 50 per cent. each anhydrous wool fat and Tuberculin O. T., human strain.

Tuberculin for the Thermal Reaction contains in each Cc. 1 mg. Tuberculin O. T. Cutter Laboratory, Berkeley, Cal. (Jour. A. M. A., Nov. 9, 1912, p. 1717.)

Afridol, sodium hydroxymercuric toluylate, $\text{C}_6\text{H}_5(\text{CH}) (\text{COON}) \text{HgOH}$, 2:3:1. It is a white powder which does not respond to ordinary reactions of mercury, the mercury being in a nonionized form. It is supplied only in the form of Afridol Soap, which contains 4 per cent. afridol. Used as disinfectant for the hands and instruments and for the treatment of parasitic diseases. Farbenfabriken of Elberfeld Co., New York. (Jour. A. M. A., Nov. 23, 1912, p. 1887.)

LATIN-AMERICAN MEDICAL CONGRESS AND EXPOSITION OF HYGIENE.

The Fifth Latin-American Medical Congress will be held at Lima, Peru, beginning the 31st of July, 1913, and lasting until the 30th of September following. The Consul of Peru has forwarded full information concerning the Congress to the Journal and assures us that a most cordial invitation is extended by Peru to the physicians of California to attend the Congress; beyond doubt all those who attend will be most cordially welcomed and most lavishly entertained.

PASTERS WORK.

The following letter is but one of a number that have been received during the last two or three months: "I am well pleased with the stickers already obtained and would like to have another set if they are to be had. If there is any charge for them I will be glad to pay the same."

TRAVEL STUDY TOUR.

To the Editor:

The visit by a party of German physicians to the recent International Congress on Hygiene and Demography has proven that a well managed Travel Study party of physicians can make a trip through a foreign country in a far more pleasant and profitable manner, and at less expense, than can be done by traveling alone. Clinics can be arranged in advance, lectures prepared and visits made to the best hospitals and health resorts, with the assurance of a hearty welcome from the leading medical men of the localities visited. For those unable to speak the languages of the countries on the Continent, this disadvantage is reduced to a minimum and the benefits of the trip correspondingly increased by traveling with such a party.

The coming International Medical Congress, London, August 6-12, 1913, gives a splendid opportunity for organizing an American tour of this sort and plans are now ready for a Physicians' Travel Study Tour, leaving New York July 3rd for the most important capitals and health resorts on the European Continent: Paris, Munich, Carlsbad-Marienbad, Dresden, Berlin, Nauheim, Weisbaden, Cologne, Brussels, The Hague, Amsterdam, etc., ending with the week of the Congress in London.

The plan of this tour has been seen and endorsed by Drs. A. Jacobi, T. C. Janeway, Ch. G. Kerley, O. G. T. Kiliani, L. R. Williams, Wisner R. Townsend and others. Physicians interested in such a trip should write for further and more detailed information to

RICHARD KOVÁCS, M. D.,
236 East 69th St., N. Y. City.

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California State Journal of Medicine.

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All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

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EDITORIAL NOTES

THE LEGISLATURE.

At the time of writing it is impossible to say just what has been proposed in the way of medical legislation, though some things are quite apparent. The usual attempt is to be made to secure special boards of examiners in almost every sort of freak cult. A number of bills have been drawn which may or may not be introduced; one of them provides an entirely new medical law on an entirely new plan, but no copy of the bill has as yet come to our attention. Another proposed law provides for separate boards of examiners for regulars, homeopaths, eclectics, osteopaths, naturopaths and divine healers! An amendment, approved by the Board of Medical Examiners and by the attorneys for the State Society, providing for license without examination in this state of those who have had a bona fide preliminary and medical education not less than that required under our present standards and who have been licensed after a satisfactory examination in their home state, has been introduced. This is the only form of reciprocity that the State Society could possibly endorse. Of course, many of those who have failed to pass the examination of our board are clamoring for a wide-open reciprocity; an amendment that will allow anyone licensed to practice medicine anywhere, to come here and get a license without examination. That is wrong for the reason that there are so many people practicing medicine, and licensed to do so in some one or more states, who never had any medical education. To speak of and whose license was secured by merely filing a diploma, which may have been purchased from a "diploma mill" at a cost of from \$50 to \$150. It is only in the last twenty-two years that there has been

any control of medical schools or of medical licensure in the United States, and even now, in many states, what control exists is more theoretical than actual. Many of our legislators do not seem to know these things; many of them seem to think that anyone should have a whack at the business of medicine; they forget that it is a profession dealing with life and death and that the people should be protected as much as possible against incompetence and ignorance.

Oakland (NOT Santa Cruz) is the place of the Annual Meeting of the State Society, April 15, 16 and 17, 1913.

UNPLEASANT PUBLICITY.

It must have been exceedingly unpleasant for Parke, Davis & Co., to have *Pearson's Magazine*, in its January number, come out with a most deleriously hectic article on the phylacogens of our distinguished fellow citizen, Schafer. The house seems to be quite honest in its desire to study these products carefully and to market them in a proper manner. They had quite a correspondence with *Pearson's*, beginning in October 1912, and have sent out copies of these letters in which they most urgently begged the magazine not to publish the article in question. But it was quite too hectic a morsel for *Pearson's* to relinquish. Strange days are come upon us when laymen, in lay publications, instruct the world, or such portion of it as listens to them and is impressed, on things medical. To be sure, the world needs plenty of instruction on things of medicine and of public health; but are the Arno Dosches to do it or are medical men to do it? This sort of misdirected enthusiasm does infinitely more harm than good. But what's the use! It's the old story; "controversy equalizes fools and wise men—and the fools know it!"

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A VALUABLE (?) PUBLICATION.

A most remarkable publication bearing the title of the *Army and Navy Magazine* has reached the JOURNAL office. The December number states that the subscription price is \$3.00 per year, but a careful examination of that issue would lead one to wonder whether anyone would ever pay money for it or if, on the contrary, he would not demand a good price for reading it. There is a department headed "Medical and Surgical," Arthur Gordon Lewis, Editor, and this "department" is certainly a wonder! The new postal law is evidently working well, in this case, for pages and pages of stuff of the reading-notice sort which otherwise might be taken for actual reading matter, are marked "advertisement"; truly valuable "medical" suggestions! Among them we find an article on that delightful fake, "dioradin," written by H. F. Boatman, M. D., Los Angeles, in which he reports a case of advanced tuberculosis "cured" by the dioradin fake; but the article is decorated with

the magic words "advertisement." One wonders whether this is the same article that appeared in the *Southern California Practitioner* last April as an "original" contribution to scientific literature; the postal law does not require medical journals to put the word "advertisement" after reading notices.

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LACK OF COORDINATION.

The potential power of the medical profession is enormous; its actual power is almost nothing; we can never agree and never work together. Time, energy and influence are wasted, frittered away over mere matters of insignificant detail or of phraseology or upon things that do not come within our province but are ruled upon by the courts. It was supposed that this year a larger amount of coordination had been secured; but it was not so to be. Dr. Marlsbary, of Los Angeles, has sent out a circular letter to, presumably, from the number of inquiries that have come to the JOURNAL office, a very large number of people, physicians, lawyers, etc., in which a number of questions affecting medical matters and the medical law are raised. (There is not the slightest intention of questioning Dr. Marlsbary's integrity or the fact that he thought he was doing something for the good of the medical profession; only, it was untimely and should have been referred to the proper Committee of the State Society.) A new definition of the practice of medicine is suggested: "the practice of the healing art for a fee." The courts determine the definition of the practice of medicine and there are a number of good decisions on the subject. Further, one may ask whether, if an appendicitis operation performed for \$1,000 is the "practice of the healing art," what is an appendicitis operation when performed for nothing called? There are many other questions that could be asked, but what's the use!

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CONGRESS FOR PHYSIOTHERAPY.

The Fourth International Congress for Physiotherapy will take place in Berlin March 26th to 30th and a rather elaborate program seems to have been arranged. The announcement states that American physicians proposing to attend the congress or desiring to contribute papers should communicate promptly with the Chairman of the American Members, Dr. G. Betton Massey, Professional Building, Philadelphia. Many features of entertainment have been provided for the physicians in attendance and for their wives.

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NEW SOCIETY; OLD JOB.

"To put the medical profession on a business basis, obtain new legislation and rid the country of 'quacks' and many abuses now said to be in existence is the hope of the American Society of Medical Economics, which was incorporated at Albany last week," says the *New York Herald*. Good news! The things this new society is going to do, according to the interview with its founder or sponsor, Dr. E. Elliott Harris, are certainly sufficiently numerous and monumental. It will stop fee splitting and secure to every doctor a better income; it will do away with lodge and contract practice; it will stop the abuse of medical charity in hospitals and dispensaries; it will put an end to the advertising quack. Why certainly! These are all evils within the medical profession itself; physicians themselves are to blame for everything complained of as an abuse or an evil, in the list. The way to correct all these evils is simple; just start a society and "do something"! But principally, start a society; call it anything you like, incorporate or not, but start a society! Never mind the fact that what we complain of is something that we, as physicians, are guilty of doing ourselves; never stop and think that if physicians would refuse to do lodge work, there would be no lodge-practice evil; if they would refuse to split fees, there would be no fee-splitting evil; that if they would not be so anxious to get "material" there would be no hospital and dispensary evil. Pay no attention to these things, but just start a society.

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PROSECUTING ILLEGAL PRACTITIONERS.

Some months ago the physicians of Alameda County decided to raise funds, by assessing themselves, for the purpose of getting evidence against illegal practitioners who were then to be prosecuted by the prosecuting attorney for the Board of Medical Examiners. Dr. David Hadden has sent us the report on the work from July 1st to the end of the year. The work seems to have cost from \$140 to \$275 per month, or a total of \$1,252; 45 arrests were made and \$1,200 in fines were paid with one case on appeal in which the fine was \$250. A number of the cases included in the report were cases of abortionists, some of them licensed to practice. It is a singular fact that the people, who should care the most, seem to care the least whether quacks flourish or not and that physicians should have to find the funds for protecting the people who do not care about being protected!

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THE OAKLAND MEETING.

Do not forget that the place of meeting of the State Society for this year (1913) has been changed from Santa Cruz to Oakland. The headquarters will be at the Oakland Hotel, opened to the public in December last, and doubtless most of the meetings if not all of them, will be held in the hotel. The hotel is run on the European plan and the rates for rooms have been fixed as follows: Without bath, single \$1.50, double \$2.50; with bath, single \$2.50, double \$3.50. The restaurant in the hotel is said to be very good and there are a number of other first class restaurants in the vicinity. Owing to the change in the place of meeting, a new Committee of Arrangements had to be appointed and the President, Dr. Hamlin, has appointed the following physicians of Oakland: E. N. Ever, Chairman; G. G. Reinle, L. P. Adams, J. L. Milton and M. L. Emerson. The Committee on Scientific Work (Program Committee) is hard at work and has arranged a very fine program; the Chairman of the Committee is Dr. Dudley Fulton, Los Angeles. The Eye, Ear, Nose and Throat Section is arranging its own program, the work being done by Dr. H. B. Graham, San Francisco. The Urological Section is arranging its own program under the direction of Dr. Wm. Gross, San Francisco. Definite arrangements as to clinics have not been completed at the time of writing, but it is quite safe to announce that there will be a goodly number of very interesting clinics arranged for one day—or a part of one day—in Oakland and on Friday and Saturday, after the regular sessions of the Society, in San Francisco. It is expected that there will be a very large attendance, as clinical material is always interesting and in addition the program is a particularly attractive one. Do not fail to arrange your affairs so that you can attend this meeting. A preliminary, and more or less fragmentary program will be found elsewhere in this issue of the JOURNAL.

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MEDICAL BUILDING.

Have you thought anything about that suggestion in the last JOURNAL as to the county society owning its own building? It can be done by a good many—if not most—of the county societies in California. You all pay rent to somebody; why not pay it to the county society? It is merely a matter of finance and of getting together, and the getting together, in some places, seems to be the hardest part of the problem. Elsewhere in this issue is the report of the Los Angeles County Association, with a statement of their building plan and a cut of the proposed Medical Building. Look it over. It is well worth your careful study, this idea of owning your own building; and it can be done. In San Francisco, the matter is still being

worked upon and unless petty personalities or dissensions come along and stop it, San Francisco will probably have its own building in the course of time. Unfortunately for San Francisco, it is notorious that scarcely ever can "two or three" be found in that community who will act together and in harmony, and even now it is rumored that a certain number of members of the county medical society do not wish to wait and see if the building scheme will materialize but would have the society immediately attach itself to the worshipers at another shrine. This is most unfortunate because every effort should be made to see if the building plan can be put through (and Los Angeles has shown us that it is *possible*) before any other plan of future development is even considered.

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LODGE AND CONTRACT DOCTORS BARRED.

The San Francisco County Medical Society has, through its committee on admissions, taken a stand that should receive careful consideration at the hands of all our county units. It has ruled that it will not recommend for membership any physician who is connected with lodge work or "dollar-a-month" contract work. The reason for this rule is quite as interesting as the rule itself. The argument is that physicians who are doing this work are, naturally, doing a good deal of work more or less carelessly and that, as any carelessly treated patient may bring a just suit or one which would cost the State Society a good deal of money, it is to the advantage of the society to exclude such physicians from the benefits of membership. The danger pointed out in the reason given by the committee is not imaginary; it is a very real one. We know perfectly well that any physician who is getting about ten cents a visit for his professional work is not going to give it the attention which it deserves; consciously or unconsciously, he will neglect such patients; they will get about ten cents worth of medical care. The San Francisco society is to be commended for its action and similar action is recommended to all our county societies.

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GOING TO BUY AN AUTOMOBILE?

Are you thinking of it? Have you any present intention of buying an automobile or trading off the old one for a new one? If so, and you want to help along your JOURNAL, will you please let us know of your intention? We want to get some automobile advertising on the JOURNAL and we can get it if you will help us show the manufacturers that we are taking an interest in that business.

It will not cost you a cent more than it otherwise would and it will help us, so if you are thinking of getting a car, drop a line to the JOURNAL and tell us what car you are considering; we will help you get it and you will help your JOURNAL. Physicians spend a lot of money in automobiles but automobile manufacturers spend mighty little money in advertising in medical journals. Why should it remain so? There is no reciprocity in that! Is it much to ask of you? Not at all; we will even return the two-cent stamp you use on your letter, if you want it! Will you do it, please?

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BOARD OF CONTROL REPORT.

The State Board of Control, created by the legislature two years ago, issued its first report about the middle of January and, as might have been expected, it found many and divers curious things to report. When one thinks that a number of state institutions, handling hundreds of thousands of dollars, and not provided with any bookkeepers, have not had their accounts investigated or audited for years, one can realize the probabilities! Elsewhere in this issue we publish such portions of the report as refer to medical matters and believe they will be read with interest. The strictures on the Board of Medical Examiners are, in some instances at least, unjust. A very large amount of legal work not at all connected with the prosecution of unlicensed physicians, has been forced upon the attorney for the board; many very important cases, at least one or two of which will eventually go to the Supreme Court, are still in litigation. It is to be regretted that the Board of Examiners did not follow the policy of the State Society and have its accounts audited by a certified accountant every year. In the case of the State Board of Health, the trouble seems to have come from a lack of proper system and no provision for petty cash expenses or what is known as a revolving fund. There are always such small items to be paid out and unless a proper system is employed, confusion is bound to follow. It is scarcely fair to impose business duties upon professional men and then not provide a business-like system; professional men are notoriously careless of business details which they, as a rule, look upon as merely irksome and to be slighted as much as possible. If the Board of Control will keep itself out of politics and not try to indulge in the thousand and one little tricks which seem wedded to political activity, it can do a really great service to the state.

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DUES! DUES! DUES!

If you value the remarkably good protection against alleged malpractice suits which the State Society secures to all its members, do not fail to pay your dues before March 1st, 1913. All members must be reported and paid for before that date or they lose the Medical Defense protection from January 1st. The rule will be strictly enforced; two months is long enough to carry any one. Dues for the year are payable in advance and are due January 1st; see that you pay your county secretary promptly and thus take no chances of being landed with a suit that you will have to defend yourself and that will cost you many hundreds of dollars. The dues are a trifling sum; the cost of defending a suit is no small joke. Do not be careless or forgetful or think you can get along without the aid of the Society. You cannot afford to be unprotected for a single day, for on just that very day, a suit may be filed against you or you may treat some patient who will later bring suit against you. Take no chances; PAY YOUR DUES!

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FRAUDULENT DISINFECTANTS.

The State Hygienic Laboratory has done an excellent work in the investigation of certain alleged disinfectants which are advertised to have extraordinary powers as germ-killers and so are sold to the public; whereas they are in truth and in fact, worthless as such. Dr. Wilbur A. Sawyer, in the Bulletin of the California State Board of Health for November 1912, has an excellent article on this subject. Samples of several disinfectants were tested for the State Board of Control with, in comparison with the claims made for them, remarkable results. In one case the label claimed that "a constant dripping of this oil into the bowls of closets or urinals would disinfect them and would also diffuse a pleasant odor which would kill contagious germs in the air such as tuberculosis and 'all kinds of fever.'" "Examination of the oil showed that dried typhoid bacilli could be soaked in it for at least sixteen hours and would remain alive." And it is for stuff sold by and because of such false and fraudulent claims that people are not only paying their good money, but doubtless in many cases they are placing a false reliance of protection in something that is worthless.

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PROGRAM

Forty Third Annual Meeting of the Medical Society of the State of California

OAKLAND, TUESDAY, WEDNESDAY AND THURSDAY,
APRIL 15th, 16th and 17th, 1913

The Hotel Oakland will be the headquarters, and you should write to the hotel and make your reservation; rooms, without board, from \$1.50 per day up.

The usual arrangement of railroad rates will be in effect; pay your full fare and get a "receipt certificate" for the going trip. Have this receipt signed by the Secretary and you may then get your return ticket for one-third the regular fare.

On Friday and Saturday, April 18th and 19th, there will be clinics in San Francisco, the full details of which will be announced later.

The following is an incomplete and preliminary program of the scientific sessions; days and times when papers are to be read will be announced later.

The following papers have been arranged for the coming State meeting. We cannot attempt, at the present time, to group the papers for the different sessions.

TENTATIVE PROGRAM.

Symposium upon Diseases of the Gall Bladder.

1. Cholelithiasis—Its Pathology. Prof. Wm. Ophuls.
2. Symptomatology of Gall Bladder Diseases. Dr. H. C. Moffitt.
3. Unusual Clinical Features Associated with Gall Bladder Disease. Dr. C. M. Cooper.
4. Pancreatic Complications in Gall Bladder Disease. Dr. Leo Eloesser.
5. Medical Treatment of Gall Bladder Diseases. Dr. Dudley Fulton.
6. Surgical Treatment of Gall Bladder Diseases. Dr. W. I. Terry.
7. Surgical Treatment of Gall Bladder Diseases. Dr. Stanley Stillman.
8. Experiences with Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. Dr. F. Fehleisen and Dr. Max Rothschild.
9. Clinical Report on Bacteriology of the Urinary Tract, especially in Relation to Movable Kidney. Dr. David Hadden.
10. Dr. Victor Vecki.
11. Modern Treatment of Fractures. Dr. W. W. Richardson.
12. Management of Fractured Charcot Hip Joints. Dr. Rexwald Brown.
13. New Legislation—In Public Health and Medical Matters. Dr. Wm. F. Snow, (Sec'y Cal. State Board of Health.)
14. Housing Problems. Miss Jessica Peixotto, (Asst. Prof. of Sociology, Univ. of Cal.)

15. Safety Protection of the Laborer. Mr. Aaron L. Sapiro, (Sec'y of Industrial Board of Calif.)
16. School Inspection. Miss A. F. Brown, (School Director of Oakland.)
17. The Diagnosis of Brain Abscess. Dr. J. F. Fisher.
18. The Diagnosis of Surgical Diseases of the Colon. Dr. E. C. Moore.
19. "Pellagra"—A case report. Dr. S. Davidson.
20. "Exfoliative Dermatitis"—Report of a case with recovery. Dr. Thos. J. Clark.
21. "Acne Vulgaris." Dr. Lasher Hart.
22. "The Coagulation Time of the Blood in Diseases of the Skin." Dr. D. Friedlander.
23. "Ringworm in California." Dr. H. Morrow.
24. "Instance of Syphilis, Eczema and Psoriasis of the Palms." Dr. D. Montgomery and Dr. G. D. Culver.
25. Parasitic Skin Diseases in California. Dr. E. D. Chipman.
26. "Presentation of Dermatological Cases." Dr. Harry E. Alderson.
27. Function of the Semicircular Canals. Dr. S. S. Maxwell, Univ. Calif.

Clinics and demonstrations will be given a prominent place in the program. The tentative plan the Program Committee has thus far decided upon is as follows:

Tuesday morning—Presidential address and general reports.

Tuesday afternoon—Symposium on Gall Bladder Disease.

Wednesday morning and afternoon—Clinics and demonstrations in Oakland.

Wednesday evening—Special meetings with papers—(3 or 4).

Thursday morning—Clinics and demonstrations in Oakland.

Thursday afternoon—Reading of papers.

Friday—Clinics in San Francisco at various institutions.

Saturday morning—Clinics in San Francisco.

The following is the provisional program for the Eye, Ear, Nose and Throat Section of the State Medical Society meeting in Oakland the 15th, 16th and 17th of April:

The first day of the meeting will be a joint meeting with the Western Section of the Triological Society, and it is the plan of the chairmen of both societies (Dr. Hill Hastings of Los Angeles and Dr. H. B. Graham of San Francisco) to hold, in addition to the three days' meeting, clinics at the various hospitals and an exhibit of pathological specimens, X-ray plates and new instruments in some central location, on the Monday preceding and Friday and Saturday following the meetings.

Any additions to the program may be handed to the Secretary, Dr. G. W. McCoy, Security Building, Los Angeles, or to the Chairman, Dr. H. B. Graham, 209 Post Street, San Francisco.

The Ductless Gland Extracts in Relation to Ear Affections.

Dr. H. Y. McNaught, San Francisco.
Meningitis of Otitic Origin Due to Organisms of the Septothrix Group.

Dr. Henry Horn, San Francisco.
Sclero-Corneal Trephining for Glaucoma (R. H. Elliot). Dr. Kaspar Pischel, San Francisco.

Sub-Conjunctival Injection of Cyanide of Mercury. Dr. A. S. Green, San Francisco.
Iritis; Some Facts of General Interest.

Dr. Vard H. Hulen, San Francisco.
Concerning the Lingual Tonsil.

Dr. M. W. Fredrick, San Francisco.
Thrombosis of the Lateral Sinus with Report of Five Cases.

Dr. Cullen F. Welty, San Francisco.
Tuberculosis of the Middle Ear.

Dr. H. B. Graham, San Francisco.

Mouth and Larynx Signs and Symptoms in Tuberculosis. Dr. H. F. Moore, San Francisco.

Trephining of Eye Ball for Glaucoma—A Clinical and Experimental Study.

Dr. W. S. Franklin, Dr. D. R. Powell.
An Unusual Case of Ophthalmic Migraine.

Dr. E. W. Alexander, San Francisco.
Effects on the Eye of General Pathological Conditions (Case Histories).

Dr. W. F. Blake, San Francisco.
Tuberculous Lymph Glands of the Neck.

Dr. Burt S. Stevens, San Francisco.

Provisional program of the Urological Section and the American Urological Association (Western Branch), which is to be held in conjunction with the California State Medical Society meeting.

The titles of the papers are:

Partial Bilateral Nephrectomy in an Advanced Case of Calculous Pyonephrosis.

Dr. Wm. E. Stevens (by invitation).
Undescended Testes. Dr. R. L. Rigdon.

Treatment of Gonorrhea in the Female.

Dr. Walter S. Johnson.
Pyclography in the Diagnosis of Hydronephrosis.

Dr. Martin Krotoszyner.
Operations on the Closed Bladder.

Dr. Henry Meyer, San Francisco.
Modern Therapy of Syphilis.

Dr. Victor Vecki, San Francisco.

Dr. Krotoszyner wishes to announce that he will demonstrate cases at the German Hospital at time to be arranged in the future.

Papers for Section on Medicine.

Peribronchial Origin of Tuberculosis with Study of Early Cases. Dr. Phillip King Brown.

The Routine Study of Diabetic Patients.

Dr. Thomas Addis.
Sources of Error in Blood Pressure Measurements.

Dr. E. S. Kilgore.
Occupational Disease—Aspects of Nitroglycerine Manufacture.

Dr. G. E. Ebright.
Rheumatism in Childhood. Dr. J. A. Colliver.

Unusual Forms of Typhoid Infection.

Dr. W. T. Cummins and Dr. P. K. Brown.
Some Aspects of Tuberculosis. Dr. N. Bullock.

ORIGINAL ARTICLES

TONSILS AND ADENOIDS—THEIR SIGNIFICANCE.*

By GEORGE H. KRESS, B. S., M. D., Los Angeles.

Tonsils and adenoids are among the most important structures in the human body. This statement is made not so much from the standpoint of the known physiological function of those tissues, as from the serious results produced by the pathological conditions to which both are so liable.

In the consideration of tonsils and adenoids, it must be remembered that these structures are only a part of a group of analogous tissues located at the upper entrance of the respiratory and alimentary tracts and spoken of as "the lymphoid ring of Wal-

deyer." This ring of Waldeyer may be said to include the two palatine or faucial tonsils in the back part of the mouth or fauces; the adenoid or epipharyngeal tonsil located in the epipharyngeal or post nasal space; the lingual tonsil situated at the base of the tongue; some isolated lymphoid patches in the larynx, especially about the ventricles and sometimes called the laryngeal tonsil; and some scattered patches of lymphoid tissue in the nose, especially about the lower turbinates, referred to occasionally as the nasal tonsils. To this group may also be added what are called the tubal tonsils, which are patches of lymphoid tissue about the mouths of the eustachian tubes; these latter being, however, regarded by some as only a part of the adenoid tonsils. The term tonsil as applied to these structures has no special significance other than to present the thought of a mass of lymphoid tissue very like that of the two almond-appearing palatine

* Read before the joint meeting of the Los Angeles County Medical and Los Angeles County Dental Associations on November 12, 1912.

bodies nearly always thought of when the term tonsil is used. All these structures in fact may be said to have a histological structure very similar to that found in Peyer's patches in the intestine, or in the solitary lymphoid follicles of the appendix or colon, or in the lymphatic glands in other portions of the body.

Embryologically considered, the tonsils make their appearance about the fourth month of gestation and at birth have a size about one-fifth to two-fifths of an inch in diameter. They reach their full size about the sixth or eighth year, then gradually begin to atrophy so that at the age of puberty, say twelve to fourteen, they should normally be very insignificant structures, so far as external appearances go.

Anatomy of the Faucial Tonsils. The palatine or faucial tonsils are two, each tonsil having a free inner surface facing the fauces or oro-pharynx, the remaining portion of the structure lying in a fossa formed laterally by the sheath of the superior constrictor muscle; anteriorly being bounded by the anterior pillar, which fold of mucous membrane covers the palato-glossus muscle (which when it contracts helps constrict the faucial isthmus and holds the tonsil back in place); and posteriorly being bounded by the posterior pillar, another fold of mucus membrane covering the palato-pharyngeus muscle (the contraction of which muscle helps lift the soft palate as well as also aiding to make smaller the isthmus of the fauces).

At birth the tonsils are often covered by a membrane or plica tonsillaris, but by the end of the first year of life only two portions of this usually remain, known respectively as the upper or plica semilunaris, which often forms also the inner covering of a fossa or recess above the tonsil known as the supra-tonsillar fossa; and the lower or base or plica triangularis.

The external portion of the tonsil, lying on the sheath of the superior constrictor muscle, is covered by a firm capsule, the arteries (tonsillar, ascending pharyngeal, ascending palatine and dorsalis-linguea) entering in the neighborhood of the base or hilum. A plexus of veins covers the tonsils and there is a free connection with lymphatic vessels by which the tonsils are connected with the submaxillary glands and then to the deep chain of cervical lymphatic glands. Von Lénard has also shown a close lymphatic connection of the tonsils with the lymphatic tissue of the nose (as witness sympathetic tonsil inflammation after nose operations) and also with the opposite tonsil; and Grober's experiments of injecting coloring matter into the tonsils have shown its transposition to the neck and bronchial glands and to the connective tissue at the apices of the lungs.

The nut-like bodies known as the palatine or faucial tonsils at maturity have a size of about one inch in length, three-fourths of an inch in width and one-half an inch in thickness. At puberty they undergo physiological atrophy, so that it is claimed that after the age of fourteen a tonsil which appears to be other than a shrunken mass may be looked upon as abnormal.

The faucial surface of the tonsil presents the

mouths or openings of from five to fifteen or twenty glands or crypts, which extend back at times to the capsule and which are lined with pavement epithelium and surrounded by lymphoid tissue such as that already referred to.

Anatomy of the Adenoid Tonsil. As regards the normal anatomy of the adenoid tonsil or Luschka's tonsil or the epipharyngeal tonsil (by which latter names it is also known) we have to consider only some discrete patches of lymphoid tissue held together by a network of connective tissue and located on the wall of the epipharyngeal space, especially in the mid line region; and covered by columnar epithelium, some of it ciliated and pierced by a few mucous glands. This tonsil of Luschka, so named because it was Luschka who with Kolliker in the seventies described this tissue histologically, really becomes, when it is in a morbid state, what is popularly known as an "adenoid" or "adenoid vegetation."

Luschka's tonsil is then a normal structure only when its own size is in proper relation to the surrounding spaces and tissues, and becomes an abnormal tissue or so-called adenoid when it assumes a change of structure and size, be that size large or small, sufficient to make it interfere with the normal condition and function of the epi-pharynx.

Adenoids are not usually noticed until the age of three to ten, but that does not mean that they are not present before that time, for we know of one surgeon of our own city who has operated, with much benefit, on at least a dozen patients of one month of age or so in the last few years. Luschka's tonsil while usually noticed between the ages given is less frequently seen after the age of fifteen because of the physiological atrophy which it usually undergoes with the advent of puberty.

Physiology of the Adenoid Tonsil. Of the physiology of Luschka's tonsil little is known and at most we can only affirm perhaps that the ciliated epithelium helps keep the secretions in proper motion; the mucous secretion adding its share of moisture to the respired air and the lymphoid elements performing the usual function of lymphatic gland tissue.

Physiology of the Faucial Tonsils. The physiology of the palatine or faucial tonsils has been more studied but cannot be said to be much more settled. The case of true and demonstrable physiological function of the palatine tonsils cannot yet be affirmed to have been made out. Among the possible functions which have been put forward for the palatine tonsils are the following:

1. That it is a modified lymph gland, and that it wages war against germs by means of its lymphocytes and secretions.

2. The view of Bordley that these tonsils have an internal secretion which helps regulate the ductless glands of the body.

3. That these tonsils in conjunction with other structures in the naso-pharyngeal lymphatic chain may produce substances in early life which have to do with the proper development of the facial bones and cavities.

4. That they may have a part to play in the modulation of the voice.

5. That they help moisten food in preparation for deglutition and perhaps throw out a ferment having an influence on the sugars.

6. That in the early years of life they may play a part in the production of the blood.

7. That it is a residual or vestigial organ with no real function of importance.

Of the above theories, we can agree that food particles are probably moistened and thus the tonsils are perhaps of some aid in the act of swallowing. It is probably not a residual organ because the tonsils are larger in human beings than in almost all other animals. They may be and probably are protective barriers against germ infection when they are in a state of health, but as the tonsils seem more often to be abnormal than normal, even the value of this function of phagocytic protection is minimized. The other theories may be passed over as having in no sense been proven. This certainly leaves no over-great amount of physiological function as a reason why our palatine tonsils should not be removed when they are abnormal or diseased.

Physiology of the Mouth, Nose and Pharynx. Before taking up the symptoms of abnormal adenoid and faucial tonsils it may be well to consider for a moment the physiologic functions which are especially interfered with when these structures take on abnormal characteristics. The three functions especially involved in diseases of the oro-naso-pharynx are those of respiration, swallowing and phonation.

As regards respiration, we must consider first normal or nasal respiration and second, abnormal or mouth respiration. In quiet normal or nasal respiration the mouth is closed off from the pharynx because the tongue and soft palate approach one another, so that the air must pass from nose, into pharynx and then into the larynx.

In abnormal or mouth respiration, in order to permit the air to get into the larynx the tongue and palate must separate, the palate in this act rising higher to lie against the posterior pharyngeal wall.

As regards phonation or voice modulation, we have to consider the nasal consonants or sounds like m and n on one hand and the ordinary consonants and vowels on the other. In the production of nasal sounds the soft palate hangs down in a flaccid state, so that the nasal air column may be set in vibration; but in other sound production, the soft palate is usually drawn up so as to almost cut off the nasal cavity.

As regards swallowing, the food is received by the tongue and pushed back, the hard palate first offering the necessary counter-resistance and the soft palate rising in addition, so as to close off the nasal cavity, while the larynx is pulled up and protected by the epiglottis.

It is then these functions of proper breathing, speaking and swallowing that are so frequently involved, locally, in the abnormalities of the faucial and adenoid tonsils, which can now be considered.

Etiology of Tonsillar Abnormalities. Before taking up the symptoms of diseased conditions of

these structures it may be asked what are the etiologic factors which play a part in the production of such abnormal states of the tonsillar tissues.

In a general way faulty hygiene, and unfavorable climatic environments, with a certain amount of hereditary predisposition may be said to all play causative roles.

Since adenoid and faucial tonsils are structures normal to the body at birth, the question of the influence of heredity arises. It would seem that parents who have had morbid conditions like tuberculosis, syphilis, malaria and similar debilitating diseases are more apt to transmit a decreased resistance to their offspring, resulting in a hypoplasia of tissue structure in such children, associated frequently with an hypertrophy of lymphoid structures in which the tonsillar tissues of Waldeyer's ring are more or less involved.

Outside of this hereditary influence just mentioned anything that produces a so-called cold or coryza in children may bring about a vicious circle that finds expression in disease of the tonsillar structures, with their resultant consequences. Faulty body and home hygiene are then of first importance as causative factors, for all must appreciate how miserably, from the hygienic standpoint, our infants and children are clothed, bathed, fed and exercised and how greatly these factors, with improper methods of ventilation, favor the production of one naso-pharyngeal cold or coryza after another. If with these, is associated a damp, unpleasant climate and improperly heated and ventilated homes and school rooms, the tendency to such inflammations of the naso-pharyngeal mucous membrane is still further increased.

Each attack of such an inflammation in infants and children (who do not know how to clear their nasal passages by blowing, and whose physical lives from day to day are filled with extra burdens thrown on their digestive and eliminative functions), means a greater or less change in the structure of the mucous membrane lining the naso-pharyngeal tract and especially in the lymphoid tonsillar structures which are called on, in these inflammatory states to absorb and get rid of the deleterious secretions associated with such conditions.

No wonder that in the recurrence of one after another of such too frequently produced and nearly always improperly treated colds, the burden on these lymphoid tonsillar structures becomes so great that they find it impossible to return to their normal inoffensive size, structure and function. And once these tonsillar tissues so change in size and structure and function, so as to mechanically and physiologically interfere with the proper work of breathing, swallowing and speaking, a vicious circle is established which still further favors the production of the symptoms now about to be enumerated.

Some of the symptoms of enlarged faucial and epipharyngeal tonsils or adenoids will be considered together, since in many cases adenoids are present when tonsils are hypertrophied or vice versa, and since in some respects they act analogously in the production of symptoms.

The manifestations of mechanical obstruction to respiration may be said to be the more important as regard the adenoids, whereas in the tonsils, the abnormalities resulting from absorption and degeneration seem to play the larger role. The picture presented by children with these tonsillar overgrowths varies greatly in degree and it must be remembered, as already stated, that the large size *per se* of a tonsil or an adenoid is not of so much importance as are their size in proportion to that of the surrounding spaces; nor is the size itself a matter of moment when mischief arising from secondary infection is serious or frequent. A small adenoid in a small and crowded epipharyngeal space may then be much more of a mischief maker and interfere far more with surrounding functions, than a much larger adenoid located in a relatively capacious epipharyngeal space. A similar analogy may be said to exist as regards the tonsils.

In considering the palatine tonsils, the symptoms of acute follicular tonsillitis or supratonsillar abscess will not be taken up, other than to state that repeated attacks of such diseases should in themselves be indications for the enucleation of such tonsils.

Luschka's tonsil when enlarged sufficiently to be worthy of the name "adenoid," may be of a firm or true hyperplastic structure or of a soft or villous form known as an adenoid vegetation, marked by furrows somewhat after the shape of the brain convolutions.

Symptoms—Especially of the Adenoid Tonsil. As a result of either type of enlargement, the epipharyngeal space is partly obliterated by the adenoid, so that less air can pass through this channel. As a consequence nasal respiration becomes more superficial and so also does pulmonary respiration, and with the poorer pulmonary respiration goes a poorer development of the pulmonary tissue itself, especially at the apices.

It must be remembered that the bones of infants and children are comparatively soft and pliable and that they respond most easily as regards their growth and proper development, according as the functions for which they were intended are properly brought into play. Thus the superficial nasal respiration with its secondary superficial pulmonary breathing brings about the production of more or less round shoulders and a stoop in the gait. The condition known as pigeon breast also often results. It will be seen that other changes in bone conformation result in analogous manner in other regions.

The obstruction to proper nasal respiration causes an accumulation of secretion in the nasal passages and when this is irritating, an eczema of the upper lip is produced. The blocking of the epipharyngeal space causes a certain amount of compensatory mouth breathing, proportionate somewhat to the amount of nasal respiration done away with.

This oral breathing brings to us our patients whom we classify as mouth breathers. If the train of symptoms stopped with this lone cosmetic deformity the condition would not be so serious, but that is just the beginning of a real vicious circle of malformations and malfunctions. With this open mouth, to permit of the necessary intake of air

through the passage, go a drooping jaw and receding chin, and flaccid facial muscles, so that the facial folds that have so much to do with expression are obliterated.

Owing to the comparative non-use of the nasal passages, the stimulus to proper development of the facial bones which comes from use of the muscles and tissues in nasal respiration is much diminished, and because of this non-use and associated lack of stimulation, serious changes and deformities in the developing soft bony tissues of the face result. Thus the development of the upper jaw is seriously interfered with, the dental arch fails to assume its normal shape, the teeth have a tendency to overlap, the incisors often pushing forward and the canines somewhat outward. This protruding upper jaw and high, narrow and V-shaped arch of the palate is often quite pronounced in some patients. Often the teeth have a tendency to irrupt higher up, and in a crowded and irregular manner.

The retained and decomposing nasal and pharyngeal secretions favor the invasion of these tissues by bacteria and as a consequence these children have more caries of the teeth than is usually the case, Manciola stating that the upper incisors and lower molars are especially apt to be thus affected.

The sinuses of the facial bones do not develop properly because they, too, lack the stimulus that comes from the air currents present in normal nasal route breathing.

It is possible that such a matter as faulty hygiene in feeding infants may also be at fault in the development of the facial bones. Barnard has called attention to the fact that artificially fed children are more predisposed to adenoids than those fed at the breast. A child taking milk at its mother's breast draws long inspirations which help keep the nasal passages free of secretions and which may have in this manner a considerable part to play in the proper circulation of the nasal tissues and in the development of the surrounding bones. Infants fed on the bottle, on the contrary, do not usually breathe as deeply, and as now-a-days so many infants are bottle-fed, this may account in part for the seeming increase of adenoids among our children.

Because of the increased secretions from the adenoid tissue and the retention of nasal secretions, there is a tendency, especially at night, for these secretions to drop downward, and in that way they lead to a descending catarrh of the mucous membranes, with resultant catarrhal pharyngitis, laryngitis and bronchitis, and the air inspired through the mouth, being devoid of the moisture usually given to it by the nasal mucous membranes still further accentuates this catarrh of the bronchial tree.

Many of these children manage to breathe through their nostrils during the day time, but at night, in the recumbent position, when the muscles are relaxed and the circulation more sluggish so that the parts are more engorged with blood, the child joins the ranks of the true mouth-breathers. This mouth breathing is but a poor substitute for nasal respiration, however, both as regards quantity and

quality, and as a consequence these children at times, especially during their sleeping hours, literally have an air hunger; so that such children are restless in their sleep, may have night terrors, night sweats and nocturnal incontinence of urine. The superficial breathing means resultant inferior oxygenation of the blood, and the restlessness prevents the child from getting a refreshing sleep and these two thus bring about an impoverished blood or anemia and a real feeling of being tired and sleepy when morning comes. No wonder such children seem stupid. Under the same conditions, grown-ups would present a similar picture. The anemia may be increased when the lymphoid follicles are at the same time also foci of septic matter.

A very serious result of adenoid growths is the involvement of hearing, some authorities contending that by far the greater proportion of middle ear catarrhs and suppurations in children have their origin in adenoids. Earaches and catarrhs of the eustachian tubes and middle ear, with resulting deafness are therefore especially frequent in these children. The deafness resulting from adenoids may come about in a number of ways. There may be direct obstruction of the mouth of the eustachian tube so that the tube cannot drain properly. Or the adenoids may press on the tubal muscles so that it is difficult to keep the air in the tube and middle ear of the same pressure, as it is on the other side of the drum, in the external auditory canal. Or the inflammation of the mucous membrane of the adenoid may by extension involve the lining membrane of the eustachian tube and middle ear. Again, adhesive bands may be formed. The increased nasal secretion and the increased effort to get rid of it, as well as the increase in the infective power of this secretion, makes more liable, also, infection of the eustachian tubes, by insufflation of such material, during efforts to clear the nose.

Probably twenty-five per cent. or more of all children have some deafness and in the big majority of these cases, this deafness probably had its initial start in adenoids. The prevention and treatment of adenoids, from the standpoint of conservation of hearing and economic utility is therefore of tremendous importance.

The stupid and expressionless faces of these children are nearly always fair reflections of their mental capacity and intelligence. This mental stupidity has been given a special name by Guyé of Amsterdam and is called aprosexia, one of its distinguishing features being an inability on the part of the child to concentrate its attention, due, it is thought, to an interference with the circulation of the brain. Part of the inattention is, however, often due to the associated deafness. These children not hearing well, they cease to pay attention and in that way their listlessness and indifference is emphasized.

Owing to the change of form in the epipharyngeal space and the interference with the proper muscle movements of the palate, these children often talk with a nasal twang, a dead voice as it were, and some even have a tendency to stammer.

The enunciation of some of the consonants is especially difficult.

Interference with the sense of taste; a cough from the inflammation of the bronchial tree; nose bleed from picking at the crusts and irritating nasal secretions; gastric disturbance from swallowing the nasal secretions; fetid breath from the decomposing secretions; and reflex nervous symptoms of neurosis and irritability are other symptoms which have been noticed. One observer has also called attention to the frequency of conjunctivitis in those children. It is to be remembered, however, that all mouth-breathers are not necessarily stupid mentally, nor that all children with adenoids, present the typical features of mouth-breathers.

For, it must be remembered, children are found who show little else than underweight and listlessness and who seem to have no normal capacity for increase of strength and vitality—a condition of hypoplasia as it were—in whom no other cause for the lack of growth and development can be found than possible foci of infection in the tonsillar tissues. The fact that groups and schools of such children have been shown to improve greatly, both physically and mentally, after the enucleation of tonsils and adenoid tissue seems to bear out the contention that those tissues were really playing a decided part in the production of the hypoplastic condition of these children.

The symptoms given up to this point are those which usually go with adenoids, although in milder degree they may also be expressive of hypertrophy of the faucial tonsils.

Symptoms and Results—Especially of the Faucial Tonsils. The special significance of diseases of the tonsils lies in the fact that they can not only set in motion the train of morbid phenomena just given, but that over and above that, they can be the entrance doors by which a large number of serious infections can gain access to the general system. For it must be remembered that the tonsils if not actually lymphatic glands, are closely related structures of the type perhaps of the thymus glands, and that whichever the case may be, there is an intimate connection with the lymphatic vessels and circulation of the body, so that it is comparatively easy for infective material to be carried to other lymphatic spaces such as the joints or muscle sheaths, or to get into the circulation, and at places where the proper conditions obtain, to set up secondary infections. Many of these infections are of a septic nature, as would be expected somewhat from the light which bacteriologic researches have thrown upon the nature of the micro-organisms found so oftentimes present in diseased tonsillar tissues.

Prominent among these secondary infections or complications or sequelae of diseased tonsillar structures is tuberculosis of the cervical lymphatic glands, there being in this particular complication an additional possible role as a route of infection for pulmonary tuberculosis.

The causal relation with rheumatism is too frequent to be ignored and it has been stated that Barker of Johns Hopkins has tonsil enucleations

done on nearly all of his rheumatic patients, before they leave the hospital.

Bronchitis, pleurisy and pneumonia; endocarditis, peri and myocarditis; myositis; neuritis, phlebitis, osteomyelitis and nephritis have all been shown to have arisen in persons in whom diseased tonsils seemed to be the only portals of entry for these infections and diseases.

Scarlett of Philadelphia in a series of appendicitis cases showed that fifty per cent. of the cases had suffered from previous anginas.

In a goodly number of patients with tonsils and adenoids, the temperature, if carefully taken at frequent intervals, will show an increase over the normal. Here, also, the explanation is probably to be found in a focus or foci of infective material.

Other diseases of a septic nature have also been brought forward but enough have been mentioned to show that the menace to health and life from this source is undoubted and serious.

The far-reaching and grave effects of tonsils and adenoids having been shown a few words concerning diagnosis and treatment may not be out of place.

Diagnosis.—The diagnosis is made on the symptoms and signs just given, it being kept in mind that the picture may vary from the hypoplastic, underweight child who seems to be a mouth breather, to the typical mouth breather with adenoid facies. In the diagnosis, the use of the post-pharyngeal mirror permits often a fairly good view of the adenoid tissue. Far less often, these structures can be seen through the nose. The finger, passed into the post-pharyngeal space often gives even more valuable information than either of the above. But the verification of the diagnosis of adenoids by these latter procedures, all of which have a tendency to frighten a child, unless most gently done, would not seem to be absolutely necessary. The operation for removal of the structure is warranted when the symptoms previously outlined are present in whole or in good part, and when no other process can be found to account for the same.

Treatment. What is the treatment for diseased tonsils and adenoids? One word tells the story and that word is "removal."

The adenoids may be removed by one of the more modern adenotomes or by a curette, either the original Gottstein pattern or one of its modifications. If in the course of several years this adenoid tonsil again hypertrophies (that is, continues to grow, in spite of its previous excision, as is apt to be the case in very young children), then remove it again as before.

For the tonsils, a host of methods of removal have been brought forward. In America the tonsillotome or guillotine, by means of which only the top or free portion of the tonsils are removed, is being rapidly discarded, so that to-day, as a rule, only the operation of complete removal or enucleation is that which is attempted. It must be acknowledged, however, that the supposed complete enucleation or tonsillectomy is often only a partial removal or tonsillotomy. But even partial re-

movals have at times been productive of much improvement in the condition of these patients.

We believe with those who are in favor of a complete removal and advocate the use of this operation on a liberal basis, our ground for so doing being the havoc which tonsils and adenoids can produce, as already outlined in this paper.

And yet it is proper to state that the operation for complete removal is by no means accepted the world over. In Germany, only a few months ago, in a discussion which we had with Professor Kilian, that authority pooh-pooed the Sluder operation and we saw only the old-fashioned guillotine or partial removal tonsil operations in his clinics. And in speaking to his first assistant, Albrecht, when we told him of one American operator, Sluder, who probably did about four or five hundred tonsil enucleations per year, we received the reply that that number of tonsil enucleations ought to be sufficient for the whole world. We were personally never able to accept the reasons of the Berlin authorities for their preference for tonsillotomy, which seemed to be based on a fear of greater or more serious hemorrhage from tonsillectomies than from tonsillotomies, and upon certain supposedly deleterious traumatic or other effects in complete tonsil removal.

By contrast to this, however, in the big Chiara Clinic in Vienna, virtually the only operation done was that of enucleation, and here, in order to permit us to try out the Sluder enucleation or evulsion method, they brought us little children, the nurse wrapping only a sheet about them to hold them, and then with mouth gag in place and no anesthetic whatever we were told to go ahead and evulse the tonsil by the Sluder method. We confess this latter somewhat cold-blooded procedure seemed almost as much an extreme in the one direction, as the Berlin teaching seemed to be in the other.

The method which we ourselves like best is the quick or "rausch" anesthesia with hot ether, and enucleation by dissecting away the upper and lateral poles of the tonsil with a curved semi-blunt dissector, and removal of the tonsil mass with the cold snare. This operation in virtually every instance can be made to bring out the tonsils in capsule and can be as rapidly done as any other method we have ever witnessed, the method of Sluder as we have seen it done by himself being no exception. With this method of partial anesthesia, the patient is usually semi-conscious before he reaches his room from the operating table.

To our viewpoint, a most important item in operative treatment, is the education of the child, after the operation, in proper methods of nasal respiration. This is accomplished by certain breathing exercises and attention to nasal hygiene.

This, then, presents our case, as we wish to make it, against diseased tonsils and adenoids.

Our inability to find an important physiological function for the structures should not lead us to advocate their treatment by ineffective local applications, when we have before us the host of deleterious immediate and remote effects they can bring into operation in the human organism.

Statistical evidence everywhere goes to show the wide prevalence of these diseased conditions of tonsils and adenoids in our children and proves equally well the beneficent influence of proper surgical intervention on the organisms and general health of such children. To advocate a wait to see if the tonsils will atrophy spontaneously, is to advocate a procedure not warranted by our present knowledge.

Think for a moment, of the large number of human beings who as children had adenoids and diseased tonsils and which were neglected, so that the physical and mental development were so seriously retarded that these individuals, in consequence thereof, and the deafness so often associated therewith, were relegated to lower places on the social and economic ladders than would have been the case had they received proper operative treatment!

Surely the crosses which this host of fellow beings unnecessarily are made to bear, leaving out of account all other reasons, should be sufficient to make us look upon properly indicated adenectomies and tonsillectomies as of the highest economic and social significance and worthy of the broad exploitation these subjects are now receiving. And in this work of education we feel sure that our colleagues of the dental profession will be more than willing to do their part.

OPERATIVE TREATMENT FOR TIC DOULOUREAUX OF THE INFERIOR DENTAL NERVE.*

By CHARLES G. LEVISON, M. D., San Francisco.

I desire to state that in this paper there is no intention to discuss the relative merits of the different forms of treatment for inveterate neuralgia of the inferior dental nerve, for it is accepted that certain methods of treatment such as injections of alcohol, etc., are sufficiently effective as palliative measures to satisfy the patient, even if their results are not permanent.

The patients here considered are those who have been subjected with more or less indifferent success to all of the accepted methods of treatment, and who in despair apply for relief; it is in this class that surgical intervention should be resorted to.

Resection of the inferior dental nerve is not difficult when carried out according to the methods generally advocated, but the end results are not satisfactory. As far as the simplicity of the operation is concerned this is quite true, but under ordinary circumstances the operation is incomplete, so that after a year has elapsed there is often a recurrence of the pain and as the patient does not return, it is assumed that a cure has been accomplished, when as a matter of fact this is not the case. With the resection of this nerve as it is usually carried out, recurrences are almost as frequent as after alcohol injections.

The points that I desire to emphasize have no claim to originality but consist of a few procedures that make the operation complete so that a permanent cure can be effected.

The operation has for its object the complete removal of the entire inferior dental nerve, including its extreme ramifications which have their endings in the mucosa of the lip. The incisor branch, which is a continuation of the dental nerve beyond the foramen and which goes to the incisor teeth, should also be removed from its canal. When the nerve is removed in its entirety, if it is the only one involved, a permanent cure is effected.

The usual methods advocate the removal of the inferior dental nerve in its canal, laying no particular stress upon the removal of the incisor branch or the filaments that go to the lower lip and its neighboring tissues.

I believe, and my experience has borne this out, that even if the entire inferior dental nerve in its canal is removed, and if the branches as they pass into the tissues are not withdrawn, a permanent cure does not always result, for in one instance the entire inferior dental nerve was removed from its origin to the mental foramen and the pain was not relieved until the filaments going to the tissues of the lip were avulsed.

Operation: The following method has been developed after numerous experiences, and while it may be slightly more difficult than those generally advocated, in my opinion it has been followed by more satisfactory results.

A small incision is made through the mucosa between the two bicuspid teeth at their roots, which readily uncovers the mental foramen together with its nerves and vessels; the stump of the nerve is grasped with a firm hemostat, when the nerve together with all of its ramifications, which are numerous, are avulsed from the tissues of the lip; this avulsion is easily done by pushing the tissues away from the nerves, which are quite large and very strong and can be firmly held by the hemostat.

These nerve endings are remarkably large and their size will surprise one who has never removed them in this way. They extend deep into the tissues of the lower lip as far as the vermillion mucosa. The nerve can generally be extracted intact with all of its endings. After it has been entirely freed from the lip and all of its branches withdrawn from the tissues, then the inferior dental nerve can be removed from the canal; this is done in the following manner:

There is a spine forming part of the mental foramen at its distal side called the "lingula" which has to be chiseled off, otherwise it is impossible to introduce a probe or any instrument into the canal;

* Read before the California Academy of Medicine, September 2, 1912.

after this is done, and it should be done under illumination, for it is easy to sever the nerve with the chisel as it makes its exit; if the nerve is severed no harm is done, but it is more satisfactory to remove it intact.

After the overhanging shelf has been chiseled off, a wire 1 mm. in diameter, having a certain amount of spring and barbed so that the barbs are directed towards the handle, is introduced into the canal and pushed upward until the point can be felt at the upper opening on the inner surface of the ascending ramus of the jaw as the nerve is given off from the inferior maxillary nerve; the handle is then slowly turned around its own axis, care being exercised that the instrument is not twisted, otherwise the wire will be so twisted as to break off in the canal; it is important that the instrument be turned slowly so that the barbed end will engage the nerve. After the instrument has been rotated eight or ten times very slowly upon its own axis, the sensation of the nerve tearing away is readily felt when the whole nerve is withdrawn from the canal more or less intact. The nerve canal can then be felt empty of its contents when the probe is introduced.

A point of importance also is to avulse the incisor branch of the nerve which is a continuation of the inferior dental nerve that passes to the two incisor teeth; this should also be withdrawn by a barbed-pointed instrument, the same as the one just described. Alcohol may be injected into the canal, but the results are practically the same if the nerve has been thoroughly removed.

Note: It was Dr. M. H. Woolsey who first called my attention to the method of removing the nerve from the canal by means of the barbed wire.

Discussion.

Dr. Hyman: Do I understand that with ordinary resection the pain does not cease?

Dr. Levison: It does but it recurs after a year or so practically as after alcohol injections. I operated in one case and despite the fact that the inferior dental nerve had been removed, the pain did not disappear until the filaments of the nerve in the lip were avulsed.

In answer to Dr. Wilbur I want to say that the first operation of this kind that I performed was prior to the time when alcohol injections had been introduced; at that time the usual procedure in tic douloureux was to trephine at the angle of the jaw and extract the nerve from its canal. As far as immediate effect was concerned, this was satisfactory and the patient remained well for a time. I have had several experiences of this kind. I advocate operation in a certain class of cases, for example:

The woman whose nerve I am here demonstrating was treated by numerous alcoholic injections given by competent people. She had reached the point where she felt that something else had to be done; her attitude was characteristic of those suffering from inveterate neuralgia of the inferior dental nerve; she could not open her mouth, neither could she speak nor eat on account of the severe pain that these motions produced. The area on the chin opposite the exit of the mental nerve was red and she held her handkerchief to this point constantly. She was ready to submit to anything but further alcohol injections. It is for these patients that operation is advocated; it is not associated with any mutilation and is really much easier to perform than to describe.

SOME FACTORS IN HABITUAL CONSTIPATION.*

By RAYMOND RUSS, M. D., San Francisco.

The center of surgical discussion shifts from time to time. The brain, the neck, the thorax, occupy in turn the circle of the spotlight, which may be switched at any moment to some other portion of the stage of endeavor. Surgery, constantly trying to increase its scope, has fads and fancies. The opening of a new field is always followed by a stage of over-enthusiasm and sometimes reckless and ill-considered operating. Concomitant causes are lost sight of in the presence of what is thought to be a newly evolved principle, so desirous are we of reducing our asset of painful experience to the proportions of absolute, scientific fact.

Until recent years our conception of the large intestine was that of a receptacle in which waste products were stored before their evacuation. The experiments of Cannon and Barclay Smith established a definite function for the first portion of this tube; with this focusing of attention came a discussion of habitual constipation which primarily concerns it. The work of Wilms, Lane, Jackson, Fischler and others is so well known that we will not comment on it; suffice to say that besides ptosis, various adhesions and membranes have been found throughout the length of this large tube and that the view is growing with many men to regard certain forms of habitual constipation as purely mechanical, and this class believe that in many instances direct interference offers the only remedy.

Bismuth meals and X-ray pictures of the large intestines are becoming common but many and most serious errors have resulted from their interpretation. While the surgeon may profit by his mistakes, the patient does not. Too frequently he pays the penalty of ill-timed enthusiasm. The X-ray is teaching us that we must abandon our mental picture of the large bowel in health; that there is a difference in location between the standing and the lying positions; that the colon may be entirely within the pelvis of a woman in normal health; that the length of the ascending colon varies within wide limits and that the cecum is most variable in size and position. These are some of the things that a careful study of X-ray plates is showing but the strange part of it is that we already possessed this anatomical knowledge.

The wonderful strides that surgery has made are so impressive that we are prone to forget its shortcomings. We have long believed that the most serious blow the subject ever received was when it was divorced from anatomy. Few surgeons of

* Read before the San Francisco Polyclinic Society.

the present have the anatomic equipment for their work possessed by those of yesterday. The result is apparent in the surgery of the large bowel as it is in other fields. A better anatomic knowledge would have saved many a blunder which has already been committed in the operating room.

This is our excuse for considering to-night some anatomical facts concerning the large bowel and their bearing on habitual constipation. The subject is so extensive that it will be impossible to consider it from all its standpoints and, as these various phases are closely correlated in the etiology, our remarks will not possess sufficient breadth to make them satisfactory. Anatomical textbooks have in general poor accounts of the large intestine and it will be necessary to revert to original articles in order to gain the necessary knowledge for surgical interference.

The cecum may be defined as that portion of the colon which is situated below the entrance of the ileum. Its average length in the adult is given by Berry, Treves and Lardennois as 6 to 7 cm., its average width is 7.5 to 8 cm. and its capacity is from 200 to 300 cc. The various shapes to be found in the human cecum are well shown in textbooks and do not concern us here, but differences in size and position are questions of moment. That the apparently normal cecum is capable of great variation in size is known to every active operator. Byron Robinson in 435 autopsies states that congenital absence of the cecum and appendix was met with in but one case and that he found excessively large cecums in a little less than one-third of all autopsies. The latter statement must be taken with some reservations for the autopsy should be made immediately after death; ballooning of the cecum will sometimes occur soon after rigor mortis has set in. Very small cecums are frequently encountered and this no doubt results from diminution of the blood supply during axial rotation and cecal descent.

The size of the cecum bears no relation to the height or weight of the adult. In the first few months of fetal life the development of the small intestines, as would be expected, is out of all proportion to that of the large bowel. There is little or no growth in the colon for the first four months of extra-uterine life. According to Legueu cecums of 7 to 8 cm. in length and longer are not uncommon in infants, but in general it may be stated that the length of the cecum augments with the age of the individual until full development is reached. Tarenetzky believes that the cecum continues to increase in length with age, but this statement does not conform with the observed facts.

Most commonly the cecum is found lying upon the psoas muscle with its apex, or lowest point, projecting but slightly beyond its border. Less

frequently the cecum lies upon the iliacus muscle. In many instances the cecum is found not upon either of these muscles but quite clear of them and hanging down into the pelvis. This fact is well known to all surgeons. In 18 examinations out of 100 Treves found the cecum in the pelvis. Lardennois, in 80 subjects examined, found the cecum more or less inside the pelvis in 9 and Alglave in 100 subjects found the cecum 17 times resting on the pelvic floor. According to Byron Robinson the cecum is twice as often in the pelvis in women as in men, 20% in the former and 10% in the latter. Properly speaking there is no such thing as a mesocecum. Cecums of normal or large size float freely and enjoy a considerable amount of movement. Small ones are usually fixed, while those of considerable size are frequently found in the pelvic cavity or in the middle of the abdomen. Stierlin states that mobility of the cecum was observed in from 10% to 23% of a series of cadavers in which all evidence of intestinal trouble was lacking. In 11 bodies out of 100 free from abdominal disease, Treves met with cecums that could be made to touch the under surface of the liver and any part of the left side of the pelvis. Dreyer in a large number of autopsies found a movable cecum in 67%; the frequency with which the cecum may be raised to the height of an upper abdominal wound is well known.

The normal or large cecum floats clear of attachments ready to take any position to which a fluid content may depress it or a gaseous content buoy it. Its upper limit is marked by an incomplete groove and angulation is apt to occur at this point. In 94% of cases the cecum is fully covered with peritoneum as is also the first portion of the ascending colon. From the tip of the cecum to the beginning of the mesocolon, there is, in the greater number of instances, a space of 10 to 11 cm., thus affording an organ, frequently out of all proportion to the size of its container, the opportunity of adapting itself to the position of the other viscera. In addition, the mesocolon is sometimes found to be stretched, thus affording a still greater excursion.

We find then that the normal cecum varies greatly in size, that it is freely movable and that its contents, whether liquid or gaseous, will determine to a great extent its abdominal position; that it rests generally on the psoas muscle, although it often lies on the iliacus, and very frequently it is clear of these and is found in the pelvis. These positions, varying as they do to such a great extent, are, nevertheless, found without evidences of abdominal disease. Moreover, it must be borne in mind that the walls of the cecum are thinner than those of any other portion of the large intestine. These variations are present at birth or take place shortly after and therefore a good proportion of our patients are predisposed to serious affections which errors in diet or daily habit may at any time precipitate.

Sometimes the axial rotation of the intestinal tract is arrested and the cecum fails to descend or only descends part way. The ascending colon therefore is capable of great variation in length. This variation is given by Cohan as from 10 to 29

cm. with an average length according to Treves of 20 cm. Occasionally it is out of all proportion to the size of the abdominal cavity.

The descending colon is the portion which is least liable to variation. It and the duodenum are the only parts of the intestinal tract that retain their original positions in the great primary vertical loop. On the other hand, the transverse colon varies much not only in its length but in its position as well. In the adult it has on the average a length of 50 cm. with a variation from 30 to 82 cm. It arches from the hepatic to the splenic flexure, which occupies not only a higher but a deeper position as well. With the patient lying down it is more frequently to be found above a line drawn from the highest point on one iliac crest to a corresponding point upon the opposite side. Possibly the transverse colon is below this line in one-fourth of all cases.

But great bends downward in the transverse colon in the forms of U's or V's are very common and these great deviations, which were first pointed out by Bright, are especially interesting to us. Generally in these conditions the transverse colon will be found bound down by adhesions, and they are potent causes of intestinal stasis. Decided kinks at the flexures have to be reckoned with occasionally and what is known as the "double-barreled stenosis" may exist at either flexure. Many of these bends are no doubt congenital and may be observed in the fetus or in a young child, but the greater part we believe are due to fecal stasis with concomitant causes such as tight lacing, faulty positions in standing, lax belly walls following confinement, and a passive lengthening of the mesentery from a sudden loss of fat.

Notwithstanding these anatomical considerations, which have long been studied in detail for the whole length of the intestine, a number of writers have lately advanced the thought that enteroptosis has a congenital basis as quite an original proposition. While radiograms taken after a bismuth meal are showing us that marked prolapse of the stomach and intestine is very common, especially in women, it does not necessarily follow that these deviations from the normal are accompanied by symptoms. We have seen several patients who exhibited enteroptosis to a marked degree, the greater part of the stomach and transverse colon being in the pelvis, but in whom abdominal symptoms were lacking.

Our conception of diseased conditions can only be founded on a careful and complete study of the parts affected in health. It is therefore evident that the surgeon who opens the abdomen with the determination of doing some general plumbing and of making the large bowel conform with some textbook illustration which he has in mind, is capable of much damage. He reaches the superlative degree of meddlesome surgery.

Constipation is such a common complaint that it becomes most necessary to examine this symptom carefully, both from the standpoint of cause and effect, before linking it to any anatomic condition which may be found to be present. It must be re-

membered that in some instances the widest departures from the normal are unattended by habitual constipation. This is just as true as the fact that some people of a most constipated habit are apparently in normal health and do not suffer from autointoxication. We recall a brassworker who had not had a bowel movement for sixteen days and complained only of abdominal discomfort resulting from carrying such a heavy load.

The time at our disposal does not allow a consideration of the indications for operation in such conditions as have been described. This is an engrossing but a lengthy chapter for the differential diagnosis, guided by physical signs and X-ray findings, is difficult and the surgeon must revert continually to his past experience in such conditions. It is hardly necessary to state that operation is only to be resorted to after all medical means have failed.

Having obtained a fair mental picture of the position of the viscera, and the condition of the large intestine in particular, we must carefully weigh the bearing which faulty position has on the symptomatology of the case in hand. If the transverse colon exhibits dilatation and a large bend downward, what will be the effect of straightening it? Possibly there will be no beneficial result if we have overlooked other conditions which may be present from the cecum to the rectum. The finding of all causes through five feet of large bowel is no easy matter and when one has operated on a few cases he will be very careful to collect all the information that is possible before subjecting his patient to such an ordeal.

Our own experience makes us feel that the first and most important operative feature that the surgeon must learn is a quick and easy manner of separating the dense adhesions which he meets in these conditions. They will be found binding down the large bowel tightly and forming kinks and angulations past which it is difficult for the fecal matter to force a passage. The bowel will generally expand at once when these are cut. Occasionally the adhesions are so dense that it is impossible to free the bowel and one must resort to anastomosis in order to make a proper passage for the fecal content, a method which while sometimes necessary, we consider in general poor practice. The raw edges left by cutting adhesions should be covered in wherever possible with No. 00 catgut on a fine needle. An intestinal stasis, severe and continued, will result sooner or later in a pericolicitis and the formation of these adhesions. The surgical treatment of general ptosis is far beyond the limits of these remarks.

The thin veil-like adhesions which Jackson has excellently described and classified as membranous pericolicitis are of a very different type. They are fairly common and Jackson's article must have recalled to the minds of many that they had dealt in the past with this condition, classifying it generally as light adhesions about the ascending colon with no further thought of their possible bearing upon the case in hand. A large number of observers, among them Gerster, Pilcher, Charles Mayo, Connell, Rubitshek, Lane, Crossen, and

Duval, have testified to this condition; Virchow mentions it, and Binnie gave a good description of it in 1905. Concerning the etiology, however, there are divergent views. Lane believes that the membrane is the result of the tendency of the cecum and ascending colon to fall, due to the upright position; that these lines of strain are crystallized into adhesions which forming bands tend to maintain the positions of these structures by fixing them to the abdominal wall. Charles Mayo is of the opinion that this membrane is due to the late rotation of the bowel and descent of the cecum, the cecum burrowing its way through the peritoneum. It is difficult to see how such a view is tenable. The membrane does not cover the ascending colon as do the layers of a hernial sac, and what is more, if Mayo's explanation is true, the cecum would be covered by this thin membrane, and this is not always the case. As Connell says, "Such an explanation attributes to the cecum in its descent from the liver the rather unusual choice of the route of the greatest, instead of the least, resistance, and prompts the question, Why burrow behind an already formed posterior parietal peritoneum, when it would be much easier to descend in front of this structure in the usual manner?"

We have regarded this condition as the result of a chronic colitis. These films are found primarily on the cecum and ascending colon; they have been reported on the descending colon as well.* Gerster is of the opinion that whether these veils are divided or excised they invariably return if the colitis persists. Many a surgical patient's enforced rest in bed and dietary regulation has brought a chronic colitis far on toward recovery. It must be remembered that the cecum is the widest and thinnest portion of the intestinal canal, that it is the seat of a most variegated bacterial flora and that the other conditions which have been enumerated make it splendid soil for the implantation of a catarrhal inflammation. In these respects the ascending colon is only second to the cecum. In one instance we have seen these thin, veil-like adhesions well marked on the ascending colon but becoming thicker and tougher as the region of the cecum was approached. The literature of pericolic abscesses, etc., in this region is growing rapidly and tends but to increase the role which a beginning mucus colitis plays in these affections.

Discussion.

Dr. Rykogel: I think that everyone will agree with Dr. Russ that in the vast majority of cases, constipation is a purely medical problem, but surgery can undoubtedly help many cases a great deal. Constipation is frequently caused by adhesions between the ascending colon and the transverse colon. I would like to disagree with Dr. Russ' statement that the so-called Jackson's membrane is purely an

inflammatory one. The impression is certainly given one that Lane is correct and that there is an effort on the part of nature to form a new mesentery. The Jackson membranes that I have seen were present in cases in which the ascending colon had more or less of a tendency to prolapse, and the appearance was always as if nature was making an additional effort to support the ascending colon. This curious membrane does not spread over on to the transverse colon, but is usually confined to the anterior portion of the colon and runs to the abdominal wall. The dissection off of this membrane has relieved symptoms, not only of constipation, but formation of large amounts of gas, and I always felt that this relief was due to the fact that the ascending colon was caused to adhere to the abdominal wall. Dr. Russ did not take up the matter of the Lane operation, which, of course, is very frequently done now—too frequently. I have opened the abdomen with the idea of doing this, but nearly always found something else that seemed to be at fault, either adhesions between the transverse and ascending colon, or some very marked prolapse with kinking, or strictures from old ulcerations, the correction of which put the patients in such shape that the subsequent medical treatment carried them on very nicely.

Dr. Levison: I was very much pleased with Dr. Russ' scholarly presentation of this subject. Here are two concrete examples of treating these forms of constipation—one I operated to-day. The diagnosis was made as preliminary to operation, and operation was carried out as expected. Patient had suffered for 20 years from habitual constipation. By means of the X-ray we could locate the apparent point of obstruction. His abdomen was opened to-day, and a kink attaching the colon to the thin edge of the liver was discovered, a number of adhesions were severed and tied off. The point of importance is the introduction of a long rectal tube high up in the intestine, which facilitates the evacuation of the bowels. Second—the same condition in splenic flexure, located by the X-ray. There were very firm adhesions, producing decided kinking. These were separated, and the man who had had almost complete bowel obstruction, was relieved and condition is satisfactory.

Dr. Lartigau: I would like to say a few words on constipation from the standpoint of the gynecologist. The subject is one of lively interest because women are frequent victims of this complaint. From this standpoint we will have to consider the obstinate cases of constipation from sagging of the whole large gut, in other words, ptosis. I would like to emphasize the point that while ptosis is a matter of importance, one has to be guarded in dwelling too much upon the mechanical factors of this subject. While operations have been advised for this condition, it has been my experience in watching such patients that 6 months or a year or two years after the operation they are as bad as at first. I have had two operated by Lane, the latter with marked improvement immediately following the operation, before which she had only one movement a week, accomplished by the use of different strong cathartics. After the operation the patient had normal bowel movements. But the condition gradually returned, and at the end of six months she was as badly off as at first. I would like to mention the psychological factor, which is not to be neglected. These patients have been treated from the psychical standpoint and cured. Some think that these cases must be studied with reference to perineal tears and to the sagging uterus. If the tear is bad, and there is marked sagging of the uterus, you will have to begin by repairing the peritoneum so that the sagging cannot occur.

Dr. Freytag: I think the X-ray is of extreme importance in diagnosing intestinal conditions. In cases of ptosis the great masses of bismuth meal

* Since the above was written Flint has published Johns Hopkins Hospital Bulletin, Oct., '12) the fact that he has found these membranes in embryos and infants at term. He believes them to be normal structures and not inflammatory in origin. He acknowledges, however, that these veils may become somewhat thickened as the result of a chronic colitis. Flint states that his argument must be admitted "unless we accept the disproven theory of foetal peritonitis." It is interesting to know that this possibility has been advanced by Virchow, Treves, Simpson and Shober. It seems to us that many bands and adhesions have their beginnings in utero and are in character inflammatory.

fill the large intestine going down, although going up it will be nearly empty. As soon as the splenic flexure has been overcome, you see the big mass going down to the rectum. It has been said that ptosis sometimes causes no trouble, but if there is no trouble they have no reason to go to a doctor for examination. I think I can say that in the examination of the intestine we are very proud of our accomplishments.

FEEDING IN LATER INFANCY.*

By H. H. YERINGTON, M. D., San Francisco.

During the past six or eight years, probably no subject in medicine has received more attention than infant feeding, and with numerous schools advocating so many various methods, the family physician, if he tries to keep up with the literature, finds himself in a hopeless tangle.

Owing to the mildness of our climate here, the mortality of infants during the first year of life is not great, and even the artificially fed, are brought through this period with few upsets and begin their second year in fairly good condition.

The majority of people have the idea nowadays that a child if watched carefully during the first year, having its formula increased by the family physician, say, once a month, needs no further attention. Thus, the physician sees no more of the baby after the 12th month and the feeding is left to the mother, grand-mother and numerous friends, who have had great experience in bringing up their own children. This is partly the fault of the physician, for how many men can sit down and write out a dietary for a mother with proper intervals of feeding, for a child during the second and third year of life? It is a common opinion that if a child goes through its first year without any signs of rickets, the danger of this disease is past, but this, unfortunately, is not true, because often owing to careless methods of feeding, beginning with weaning and lasting through the second year, marked rickets may be the result.

In the Children's Clinic of the Medical Department of Stanford University, it is our custom to begin adding substitutes for milk at about the 11th and 12th months, and either a small feeding book or a carefully written dietary is given the mother, with directions as to the intervals of feeding and amount of food to be taken. At this period, when a change of food is begun, it is important to watch carefully the ability of the child to digest its new food, and this necessitates an examination of the stools at various times, which is a simple procedure, and can easily be done by any one.

Briefly, the examination includes three parts:

1. Macroscopic, including size, color, consistency, odor, mucus, pus, blood, food masses, parasites, etc.
2. Reaction to litmus.
3. Microscopic examination, including—
 - a. meat and vegetable fibres.
 - b. a Lugal stain for starch.
 - c. Soudan red and acetic acid stain for fats, fatty acids and soaps.
 - d. stains for bacteria, such as tubercle, colon bacillus, etc.
 - e. parasites and ova.

Such an examination can easily be done in fifteen minutes, and in any intestinal condition should never be omitted.

During childhood milk should be the basis of diet, and the rule of giving not more than 24 oz. in 24 hours is a good one. Small children getting a quart or a half and a half of milk a day, often suffer with flatulence, colic, and constipation and, as a rule, refuse other food. A normal baby, age 12 months, weighing, say 21 lbs., should have not more than five, and better, four feedings a day. An ounce of orange juice diluted with water should be given on waking in the morning, at least a half hour before milk is given. The subsequent feeds should be given at 7:30 a. m., noon, 3:30 p. m., and 6:30 p. m. At first a ten o'clock bottle may be given, but this can soon be eliminated because with a liberal meal at 6:30, the child will sleep until the next morning. Varieties such as well-cooked cereals, zweiback or toast, scraped beef, or beef juice, some well-cooked vegetables in the form of purees, part of a baked potato, baked apple, apple sauce along with five or six oz. of milk at a feeding, should be the dietary from the 12th to the 18th month.

Many mothers come to you during the child's second year, saying that their child will not take milk, and this is due to the fact that after the 12th month, so much fresh bread, sweets of all kinds, etc., are given and the children are fed so often between meals that their desire for milk is lost, and they prefer substitutes instead.

During the latter part of the second year, and through the third year, children should take not more than a pint and a half of milk during the day, and the mother should arrange the time of meals at intervals to suit the household, the point being that the feeding periods be regular and the time between meals increased. If this rule be adhered to, the child will have an appetite at meal time, and the so-called "intestinal indigestion" will be warded off. Such foods as finely cut meat,—beef, mutton, steaks or chops,—can be added, with soft boiled or poached eggs, custards, gelatine jellies, etc.

I would say that the two most common causes of intestinal disturbances in young children, are the over-feeding with fats and starch. Owing to the richness of our certified milk, we find children with flatulence, constipation, loss of appetite, eczema, and restlessness, whose condition clears up

*Read before the Medical Section of the San Francisco County Medical Society, June 4th, 1912.

on a skimmed milk diet. On the other hand, we have a class of cases we call the "starch" type; very pale, showing blue rings under the eyes, having abdominal pain and often an enuresis.

On examination of the stools, we find a quantity of undigested starch granules, and a report of the dietary shows the child has been living on cereals, milk, and a considerable amount of fresh bread and cake between meals. In the majority of these cases a proper non-starch diet, with iron and gray powder, regulates the condition, and the improvement is rapid.

In conclusion, I would say that much of the intestinal disturbances in young children could be avoided if the family physician would give the mothers definite rules in writing as to proper food, and definite intervals of feeding.

DIETETICS FROM A MODERN STAND-POINT.*

By ANNIE W. WILLIAMS, M. D., Hayward.

In this age of searching analysis keen observation, thorough research, extensive and exhaustive laboratory experiments, practical demonstrations and laborious investigations, dietetics, the science of study and regulation of the diet, has not been overlooked, but has received its full and much needed share of attention. World-wide questioning is being directed to the disquieting fact that eating just for self-gratification, the good taste and flavor, because you happen to like it, and to satisfy a pampered, over-cultivated and oftentimes more or less perverted appetite, is possibly not all it should be.

We, the members of the medical profession, are many of us overlooking and disregarding some very vital facts concerning diet. Not the diet of the few but the diet of to-day civilization. Twentieth century scientists have painstakingly compiled for our consideration a reliable array of valuable facts that can be immediately adopted for practical use in every-day prescribing.

Dietetics considered from a modern standpoint not only takes into account the food units, food values and nutritive values of foodstuffs but also considers their medicinal values, which furnishes a fascinating field of study and research. In the near future the medical profession will be able to compute not only the nutriment values, the nourishing and sustaining values of the diets that they are prescribing but also just what medicinal values, if any, with the estimated dosage.

Take the yolk of an egg, for instance; it is a most perfect natural emulsion containing in solution or suspension several important and well-known drugs which physicians are daily prescribing. Iron, which has heretofore been supplied to the medical profession from the mineral kingdom, is now being prescribed in some cases by giving the patient the vegetables in which iron is found. The iron as contained in the vegetable is in such

a form that it is readily assimilated by the human system and without any of the disturbing effects often following the administration of metallic iron.

Modern dietetics admonish us that the juice of lemons is to be preferred to vinegar and that the sub-acid fruits are very helpful to a certain class of patients. We are enjoined not to let a day pass without eating something in the way of raw food and are informed that honey is a storehouse of energy and a natural laxative.

In the way of raw foods may be mentioned: a stalk of celery, a crisp young carrot, fresh lettuce, a quickly grown white turnip, a crisp cucumber, mild, sweet, green onions, and other raw foods too numerous to mention. The amount of painstaking scientific investigation and research that has been accomplished and published along the lines of foods, food values and nutritive values of foodstuffs is truly amazing to the uninformed mind upon this particular phase of diet. Stokes & Co. of New York make a specialty of publishing and supplying a goodly number of publications including the more recent up-to-date works upon this subject.

At all the world's great seats of learning and universities and research laboratories much time, expense, labor and laboratory space has been devoted to the scientific study and searching investigation of food materials and food stuffs, including practical demonstrations on human squads, and the man in the box, and other exhaustive experiments; which on the whole have furnished more or less satisfactory enlightenment upon this subject. The sum total of knowledge thus acquired, and sifted out, being of undoubted scientific and practical value.

In my last trip across the continent I noted that all our American universities are taking a most prominent part in these nutritive investigations. Our own state university is very much up-to-date in this line of work and most valuable information and data may be obtained from the professors and the investigators engaged in this work there. It has been stated by an eminent Russian investigator, Mr. Smolensky, that more has been accomplished in ten years in the United States than could have been done in Germany in fifty years.

In many public libraries books treating of these subjects are now to be found; notably in Berkeley public library, where the works of some of the most noted writers upon these subjects are to be found on the shelves. The modern physicians who desire to be well equipped and not out-of-date will realize the deep importance of informing themselves upon these modern phases of dietetics which are making such rapid advances and remarkable strides forward.

It makes one rub one's eyes to learn that those severe twinges and dull aches in the shoulder muscles which have been duly scheduled under the convenient and all-inclusive name of rheumatism, may be due instead to a parasite that we take into our system with the pork that we find so delicious and satisfying. It has been discovered, and even depicted upon moving picture

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

screens, that these parasites choose as their favorite habitat in the human body the shoulder muscles, where they locate and become domesticated. This is to be thought of the next time your patient bitterly complains of persistent so-called rheumatic pains in the region of the shoulder which the customary treatment and usual medicines have failed to relieve.

Then there is the caffeine to be considered which we so innocently imbibe in our favorite table beverages. It is being strongly urged that its continuous, continued use will set up a train of ailments which if persisted in will in some cases become threatening and serious. When one is warned by an incipient insomnia or an interference with digestion the best plan would be to discontinue these customary table beverages at once.

Alcohol has lost its prestige and is being tabooed to its place among the other well-known narcotic poisons, by the findings of science, by all well informed physicians and by all those who have been properly instructed in regard to the scientifically proven narcotic action of alcohol.

The subject of modern dietetics is becoming of such definite and decided interest to the universal, general public and to humanity in general, that the leading magazines and papers are devoting valuable space with most prominent headlines to the subject. For instance, *The London Lancet* gives emphasis to the fact that port wine contains tannin and is thus unsuited to many constitutions and that walnuts besides containing 63 per cent. fat and nearly 13 per cent. of protein also contain tannins and thus disagree with some constitutions.

These instances might be multiplied and they serve to prove the world-wide universal interest in the public mind, that is being shown in modern dietetics, the wide-reaching scope of that interest, and the intelligent nature of it. Formerly we demanded that our food should appeal to us. At the present time we are not quite so well satisfied unless it also furnishes us with an all-around nourishing sustenance.

We have been demanding in a rather telling way that our flour should make pretty and attractive loaves of bread, and consequently the wheat kernel was necessarily divested of some of its vital nourishment, that it might furnish a whiter shade of flour. Another almost naturally perfect, wholesome article of diet, rice, had to undergo polishing to render it more attractive in appearance. This process of polishing robbed the rice of its proteid constituent. In the modern diet unpolished rice is returning to favor and many of us have learned to purchase the unpolished rice exclusively. Very fortunately the potato, another almost perfect all-around article of diet, with its peeling as a protective coat escaped the beautifying treatment and reached our tables in its natural state. Most of us in eating this delicious tuber and prime favorite of the vegetable kingdom, add a little butter and this addition makes up for the fatty constituent in which the potato is normally lacking.

A sweeping edict of modern dietetics has doomed the frying pan, that universal favorite utensil of the culinary art. No longer need housewives fry themselves as well as the viands, in order to appease the hungry members of their household.

This is an age of modernity, individuality, and individual thinking. Established customs and usages no longer hold an unquestioned grip on things universal. The why and wherefore are being sought, individually and collectively, and most eagerly sought. The world has turned the searchlight of rigid investigation upon the subject of food and food effects and the resultant conditions. Health and diet have become a topic of paramount importance. Modern dietetics takes note of the undeniable truth contained in that terse but illuminating passage, "Man does not live by bread alone." It recognizes the fact that mankind is a creature of complexity, composed of physical, mental and spiritual factors so intimately intertwined and interwoven as to produce more or less of a failure whenever any of his triune faculties are overlooked or neglected.

No matter how exact and scientifically correct the prescribed diet may be, to obtain the desired results which above everything else is what both the physician and patient are seeking, all these contributing and ameliorating conditions must be taken into account. Mankind when created was placed in the all-pervading fresh air, the dome of the sky with all the glories of its diurnal changes above him, the earth with its interchanging seasons beneath his feet and the beauties of nature all about him.

In his strenuous endeavor to improve conditions mankind built four walls. At first the walls were mere skeletons and not four in number but presently they were increased to four forming a complete enclosure and gradually becoming stronger, firmer and thicker, until it became necessary to break holes in them to admit the air. In the progress of events doors and then windows were devised and as a crowning achievement panes of glass were made and fitted into the windows. The windows were tightly battened and the doors locked and at last mankind was securely shut away from his natural and intended environment. He complacently set himself down and endeavored to bring up his progeny under these alien and unnatural conditions. The fresh air could not reach them except in scant supply, the sun was prevented from shining upon them, the blue of the heavens with all the splendors of the sun, moon and stars, clouds, fogs and mists, was roofed out from them, their feet were carefully shod and faithfully kept from treading mother earth and all the beauties of nature were mostly shut out from their view.

Many unknown and unheard-of diseases became fastened upon mankind, all of which are classed under the head of the so-called house-diseases, notable among which are dyspepsia and tuberculosis or the white plague. Results have unmistakably proven that house life versus out-door life is a disastrous failure and that mankind has deteriorated markedly.

Mankind is evolving from the period of searching experiment and rigid investigation as to the effects of feeding and housing upon domestic animals into the period of similar searching and rigid examination as to the effects of feeding and housing upon the human and is obtaining the same successful and satisfactory results. The fact has dawned upon mankind that they have made some egregious blunders in their endeavor to improve upon normal mundane conditions and now the word has gone forth, uttered with an insistent meaning, "Back to the great outdoors" and mother earth and natural modes of living.

In a recent lecture on the "American Mind" the noted speaker said, "intellectually the American is inclined to radical views, but he has a great deal of practical conservatism. There is in fact conservatism in our blood and radicalism in our brains, and now one and now the other rules."

In this question of dietetics one need not be too radical or unduly conservative but rather choose a middle course and adapt the diet to the individual need. We are not compelled to follow the most radical and live exclusively upon raw foods though they are of undoubted merit and deserving of careful consideration, or is it necessary to confine the diet to just one article, although this is helpful to some cases for a certain time. Neither need we be so very conservative as to refuse to accept the findings of science as regards these nutritive investigations, as to the most desirable diet for health, efficiency and endurance.

The fact of the matter is, mankind the world over is not only accepting the teachings of science on dietetics as rapidly as they can readily assimilate them, but they are eagerly seeking out for themselves all the facts and information that is attainable. They evidently agree with Emerson who says, "Get health, no labor, pains nor exercise that can gain it must be grudged."

In closing this paper may I urge upon the medical profession as a whole that they give their most earnest thought and careful attention to this more recent modern phase of the subject of dietetics.

Discussion.

Dr. D'Arcy Power, San Francisco: I am sorry that the subject of dietetics has not been more fully represented in the program of this meeting. There are many points on which we are still partially informed and among these one of the most recently brought forward is the fact that there is not a strict relation between caloric values and nutritive values. That is to say, there are foods having the same caloric values which when applied to actual feeding of live stock give very different results in the actual nutrition of the animals fed thereon. Furthermore, I have a strong belief that some of our constants are not always reliable. Thus it is usually assumed that a calory diet of less than 1500 calories per day must necessarily be insufficient to maintain equilibrium, but personal observation convinces me that there are abnormal people who maintain their weight on a dietary of smaller calory value than this. Lastly I would like to point out that Dr. Williams' remarks about coffee are not borne out by recent experimentation as it has been shown that coffee is capable of stimulating and improving

both mental and physical work without a negative phase.

Dr. Annie W. Williams: I consider that the difference between my statement in regard to the use of caffeine and that of Dr. Powers, who so kindly and ably discussed my paper, lies in the fact that the statement I make in the paper refers to the continued, continuous use of caffeine for not only days and weeks but for months and months and years and years in our table beverages. Dr. Powers' statement I believe would refer more particularly to its drug effect as a tonic drug. I will now close the discussion, thanking you for the manifest interest and attention accorded to my paper.

A RECENT CASE OF LIPECTOMY.*

By H. EDWARD CASTLE, M. D., San Francisco.

In presenting this case I am showing you not an unusual form of deformity. Truly it may be called a deformity when adipose tissue increases in a localized area to such an extent that the body is so ill proportioned. The treatment I shall mention, while not entirely rare, is far less common than it should be. With the beneficial results I have obtained with lipectomy I feel this statement is not too dogmatic.

The lady, a private patient, has been so kind in permitting herself to be photographed and other



Figure I

publicity would be so embarrassing I felt it improper to ask her to come before you this evening, therefore I shall present the case by lantern slide demonstration which I feel will depict her condition before and after operation to your entire satisfaction.

*Presented before the Surgical Section of the San Francisco County Medical Society, June 18, 1912.

The patient was forty-two years old, five feet two and one-half inches in height, and weighed two hundred and sixty-five pounds (Figs. I and II). Her mother weighs two hundred pounds, and has myocarditis. Father weighs two hundred and ten pounds. One sister is fleshy but not overweight. Otherwise her family history



Figure II

is negative. She has eight children, the youngest is two years old. Since the birth of the youngest child there has been a marked disastasis recti abdominis and a large umbilical hernia. Three years ago varicosities of the left leg began in the internal saphenous and its tributaries. A year later a similar condition was manifest in the right leg. Two weeks prior to operation a large hematoma developed on the inner side of the left leg about four inches below the knee. Under general anesthesia the left leg was operated after the Trendelenburg-Ferguson method, the right leg after the Trendelenburg-Schede method. The large pendulous abdominal adiposity was removed by Kelly's method of lipectomy and the umbilical hernia taken care of by the ingenious method of Mayo.

It is my desire to draw your attention to the operation of lipectomy. Owing to its extreme simplicity and undoubted benefit I can conceive of no reason why it is not more often done. True it is that any infection introduced into a wound so extensive as this might play havoc, but this must be taken for an excuse for improper work rather than against the performance of the operation. Owing to the great weight of the patient and the incision extending far in the back it takes

extra care to avoid contaminating the ends of the wound.

Beginning the incision two inches lateral to the spinous process of the first lumbar vertebra it is carried across the abdomen above the umbilicus to an analogous point on the opposite side; the ends of this incision are joined by a second one traversing the abdominal wall above the pubis, thus marking an ellipse. The flap on either side is dissected back one inch, thus permitting a better closure of the wound. This incision is now carried down to the deep fascia and the elliptical piece is rapidly removed by the use of a knife about eight inches in length. Care must be exercised as one approaches the umbilicus, as here the superficial fascia is nearly lacking and one might readily open the abdomen. The field is covered with towels wrung out of hot salt solution while the umbilical hernia is repaired. In closing the wound three sets of sutures are used, viz: a row of silkworm tension-sutures are placed one and one-half inches from the edge of the flap, passing in through the integument and superficial fascia, picking up the deep fascia and out through the other flap in a corresponding position. These sutures are placed about two inches apart. As they are introduced each end has a hemostat placed on it. The superficial fascia is closed by a continuous catgut suture and the skin by a continuous horsehair suture.



Figure III

The utmost care should be exercised in making an exact apposition of the edges of the skin as this is of paramount importance in rapid and primary wound healing. After the horsehair suture is placed each silkworm gut suture is run through a small rubber tube, which is about two inches in length, and tied. The object of the tubing is

to prevent the silkworm gut from burying itself in the skin, at the same time permitting the inspection of the wound, which cannot be obtained



Figure IV

if the sutures are tied over a bolster of gauze. There is no occasion to employ drainage in these cases, and I object to its use, as I do in all clean



Figure V

wounds. I do advise, however, a daily inspection of the wound and the introduction of a grooved director between stitches if there be any accumula-

tion of serum present. A moderately snug abdominal bandage is applied over the dressing and the patient put to bed on a back rest so as to slightly flex the body.

Fig. 3 shows the insulating tubes five days after operation. Fig. 4 shows the patient two weeks after operation. Fig. 5 represents the shape of the specimen as removed. It was one yard and three inches long, one foot and a half wide, three inches thick at the edge and weighed seventeen pounds.

Although up daily, after the first two weeks, the patient was retained in the hospital for five weeks to make it possible for me to have complete control of her diet. At the time of her departure from the hospital she weighed one hundred and ninety pounds, which was seventy-five pounds less than her weight on entrance. Her waist measurement was eighteen inches less. She will be kept on a diet, which is reducing her at the rate of two and a half to three and a half pounds per week, until her weight reaches one hundred and forty pounds.

BIBLIOGRAPHY.

1.—Obesity and its Surgical Treatment by Lipectomy. H. Edward Castle. *Annals of Surgery*, Nov. 1911, Vol. LIV., pp. 706-710.

REPORT OF CASE OF DOUBLE TUBAL PREGNANCY.

By DAVID HADDEN, M. D., Oakland.

I want to report in this paper a case of double tubal pregnancy and a case of hemato-salpinx with bleeding into the peritoneal cavity unassociated with pregnancy.

The first patient, a woman of 35, has been married five years, but so far has not been pregnant. The history previous to the present sickness gives nothing of value except that a year before marriage there was an acute attack of pelvic trouble lasting some weeks, the main symptoms being pain in the pelvis and fever. The woman up to the time of that attack had been in good health, since then has had more or less trouble with her periods and is on the whole rather run down, but with no symptoms of any definite type.

I saw the patient first after a diagnosis of tubal pregnancy had been made by the attending physician. She was then two weeks over her menstrual time, which was by no means unusual for her, the only difference being that she was more nervous than usual and somewhat inclined to hysterical attacks. She complained that the breasts had been a shade sorer than usual, but that was only relative, as she had always more or less soreness at the periods.

On the evening of June 19th the patient began to have a brownish discharge gradually getting more profuse. About midnight while at toilet a sharp tearing pain occurred in the right side with a feeling of faintness. From then until the following noon the pain was quite persistent being mostly in the lower right side of the abdomen and was accompanied by diarrhea and nausea. When these symptoms subsided the patient felt comparatively well except for the extreme tenderness over the lower abdomen.

Examination showed the breasts somewhat tender but not enlarged, Montgomery tubercles more marked than normal, but patient says they have

always been so, otherwise the breasts gave no suggestion of pregnancy.

Abdominal palpation gave tenderness over both inguinal regions with a greater rigidity on the left side. Pelvic examination showed a uterus somewhat enlarged, cervix soft, considerable enlargement of right tube with extreme tenderness. A soft boggy mass occupying the left broad ligament and only slightly tender to touch. A grumous discharge from uterus. A diagnosis of an intraligamentary ruptured tubal pregnancy on the left side with probably a hydrosalpinx on the right was made.

The operation showed the left broad ligament distended with blood from a ruptured hematosalpinx. On the right side a hemato-salpinx (unruptured) which at the time was considered to be a sympathetic condition or perhaps similar to the other case reported in these notes. The microscopical examination of the right tube showed, however, the presence of villi and though the examination of the left tube has so far not been made carefully, I feel justified in diagnosing the condition on that side as an intraligamentary rupture of a tubo-ovarian pregnancy. I know of no condition which would cause a hemorrhagic rupture unassociated with weakening of the tubal wall as occurs from the villi penetration.

The second case is one of a woman, 29 years of age, who up to the time of the attack here reported had been in good physical condition with nothing of value in the history except that she was married some time ago, but for some years has not been living with the husband. The attack commenced as an acute pelvic inflammation, the gross pathology presenting in the left tube.

A diagnosis was made of pyosalpinx, which was confirmed by another gynecologist, who kindly saw her for me while I was on a vacation. Expectant treatment was adopted and the pain, temperature and soreness gradually subsided, the left tube remaining enlarged. There had been no disturbance of menstruation and no symptoms pointing to a tubal pregnancy. Some two or three weeks after the onset of the trouble the patient was up, feeling fairly well and anxious to return to work.

Without permission she took a street car ride and returned home suffering intense pain in the left side. Locally the findings were unchanged for some days, but the temperature returned and the patient was generally in poor condition. This happened while I was out of town and on my return some days later I found on pelvic examination a large mass projecting in the cul de sac and made a diagnosis of pelvic abscess.

A posterior incision showed a large collection of clotted blood. The left tube much distended, high up and adherent. After the operation the patient's condition improved markedly, but fresh bleeding continued through the gauze packing. Twelve hours later a laparotomy was done and a large oozing hemato-salpinx was removed from the left side. The recovery was uneventful, drainage being continued from the cul de sac.

No question as to the condition was raised in either the consultant's or my mind until some time later when the patient denied absolutely, the possibility of a pregnancy being present. A careful microscopical examination of the tube made then showed no embryonic structures and the man who made the sections reported that it reminded him of a similar case of a nurse at Johns Hopkins where an exceedingly thorough examination showed no signs of pregnancy.

Oakland (NOT Santa Cruz) is the place of the Annual Meeting of the State Society, April 15, 16 and 17, 1913.

THE TECHNIC OF THE REMOVAL OF FOREIGN BODIES AND NEW GROWTHS FROM THE ESOPHAGUS.*

By W. P. MILLSPAUGH, M. D., Los Angeles.

This subject is a little bulky for a ten-minute paper and I shall begin immediately to use the pruning shears. That portion of it referring to new growths is an unknown field to me, and I shall leave it untouched. Malignant growths are almost the only ones found in the esophagus; their removal belongs to general surgery.

In discussing the removal of foreign bodies, I suppose some mention should be made of the older and well-known methods. But I shall give very little time to this part of the subject, for I believe that those older methods are so blind and uncertain and dangerous that they should be discarded in practically every case where esophagoscopy is available. The number of men employing esophagoscopy is increasing rapidly, so that in the near future this means of relief will be available in nearly all parts of the country. And while time is very important in these cases, it will frequently mean less danger to the patient to take the time necessary to reach an esophagoscopist than to try to remove the foreign body by the old means.

Among the old methods I shall speak of inversion, the induction of vomiting, the administration of more or less solid food; the use of the bougie, probang and coin-catcher; and of the esophageal forceps.

I suppose it does a child little harm to stand him on his head and try to shake out a swallowed foreign body, if that effort is not persisted in too long. And if the body is round and smooth I suppose it would do little harm to give emetics and thus try to eject the intruder. And, further, if it be known that the body is not only smooth but of such diameters that it could be forced into the stomach without great risk it would sometimes be permissible to administer solid food, in an effort to carry it along, or even to carefully push it along with a bougie. No doubt these old methods have frequently been crowned with success, and in certain cases are relatively free from danger. It is astonishing what the esophagus will sometimes tolerate, as well as the rest of the alimentary tract.

The probang and coin-catcher are ingenious devices, frequently successful in proper cases, but responsible also for much hidden and disastrous damage; they belong to a chapter in surgical history which should be closed. The same praise and the same condemnation belong to the esophageal forceps; by these I mean the curved or angled or flexible forceps which are introduced blindly and which bite blindly for their object. Who could know whether the resistance felt on withdrawing a body by such forceps was the resistance of the body against the esophageal wall or whether a portion of the wall itself was coming, and how could one tell whether the point or edge of a sharp body were perforating or lacerating the wall in its passage? Of course the fluoroscope properly

* Read before the Los Angeles County Medical Association, November, 1912.

managed would be a great aid in the manipulation of these instruments.

In thus condemning these old and useful procedures as generally too dangerous, I do not by any means claim that esophagoscopy is free from danger. It has many dangers, which will be considered at length later; I have spent anxious hours over a patient after an attempt at esophagoscopy, not knowing at what moment his pulse and respiration might cease.

The technic of removing foreign bodies by esophagoscopy resolves itself into two main problems—the introduction of the tube to the level of the foreign body, and the grasping and withdrawal of the body.

The question of anesthesia has always to be settled. It differs somewhat from the similar question in bronchoscopy; here there is never any need to preserve the cough-reflex, and the greatest possible dulling of sensation is desirable. However, the esophagus itself is not very sensitive, and the tendency with most men in this field seems to be away from general anesthesia toward local anesthesia aided by the hypodermic use of morphine. Some work at times with no anesthesia, in very young children, for instance. Janeway and Green¹ have even done a large number of gastroscopies under the following routine anesthesia: 1/4 grain morphine is given hypodermically shortly before the examination; a little later 5 grains of anesthesin are given by mouth; finally the pharynx is thoroughly anesthetized with 10% cocain. They state that "the degree of discomfort experienced has not been regretted by any of the patients examined." It is usually desirable to give from 1/150 to 1/100 grain of atropine with the morphine; this lessens the secretion of mucus, which is nearly always troublesome. In certain cases, notably in children and very nervous patients, general anesthesia will be necessary, especially if the foreign body is such that much manipulation will probably be required. In my judgment chloroform is too dangerous, and ether should always be used unless especially contra-indicated. Rectal or intravenous anesthesia would be very pleasant for the examiner, if only they were safe. The administration of warm ether vapor through nasal or mouth tubes would be of advantage. But ordinary anesthesia is satisfactory; the patient should be put well under before work is begun.

My own experience has been limited to the use of the Jackson instruments, and the position of the patient and other details of introduction into the esophagus are similar in many respects to those for introduction through the larynx. If local anesthesia is used the patient is usually seated on a low stool. An assistant sits behind him and steadies and supports the head. For general anesthesia, the patient lies supine, with shoulders extending four or five inches beyond the end of the table, the assistant seated at his right supporting the head and neck. Just lately I have begun the use of Jackson's direct laryngoscope. This may be introduced into the upper esophagus for a short distance, far enough at times to reach

the foreign body without a secondary tube. If the body lies lower, the esophagoscope may be introduced through the laryngoscope, past the troublesome cricoid, after which the laryngoscope may be withdrawn, leaving the longer tube in position. Johnston of Baltimore uses this method largely; to me it promises considerable satisfaction. The older method is to introduce the left index finger as far as possible toward the patient's cricoid and then slip the tip of the esophagoscope along the finger to one pyriform sinus; this point being reached, if the assistant secures just the right amount of forward stretching of the neck and of extension of the head on the occipito-atlantal joint the tube can be slipped into the esophagus quite readily. This sounds simple enough, but to me it has usually been the hardest part of the task; a trained assistant for holding the head is a most valuable asset. Once well past the cricoid the tube usually slips easily down the rest of the gullet, the assistant varying the position of the head and neck slightly to prevent undue pressure of the tip of the tube. In foreign-body work the tube should always be introduced without its mandrin and every centimeter of the esophagus inspected from above downward. Of course if the body is known to be low down the mandrin may be used in the upper part, but even in this case it is better to examine the whole length of the gullet, noting the amount of traumatism which the body has caused.

Having reached the foreign body, the second main problem is before one. Important points in this problem are the shape and size of the body and whether it is firmly embedded, whether it has sharp points or edges, perhaps already fixed in the wall or, if not, in such position that traction is likely to cause them to perforate. Pins, open safety pins, sharp pointed bones and similar dangerous objects are among those frequently swallowed. To remove these safely calls frequently for much judgment, care and ingenuity. Various clever instruments have been devised for closing safety pins, cutting pins, breaking tooth plates, etc. In general the principle is to try to draw the sharp points or edges into the tube before attempting to withdraw them, unless they happen to be pointed safely downward. When the body is too large to pass through the esophagoscope, tube, forceps and object must be withdrawn together, except where it is found possible and advisable to break the body into fragments.

We come back now to the danger of removing foreign bodies by esophagoscopy. It is to be remembered that we are working in a long tube with delicate walls, in close proximity to the pneumogastric nerve; and to enter this tube we must obliterate the angle which it forms with the cavities of the mouth and pharynx. As an aid to this and in the early days of esophagoscopy it was considered good form to pull out at least one upper incisor in order to make more room. This is no longer thought proper, but we are mighty glad when the patient happens to have lost them! There is danger of perforating the esophagus with the tube, but this should never

1. Janeway and Green. Surg. Syn. and Obst., Sept., 1911.

occur; force in inserting the instrument is unnecessary and utterly unjustifiable. There is danger of causing retro-pharyngeal abscess from traumatism; this has occurred at the hands of very good men. It should teach us to use the utmost gentleness and care. There is danger of laceration and perforation of the esophageal wall from misguided efforts to withdraw a sharp or angular body; the result may be mediastinal abscess and probable death. There is danger of reflex stoppage of respiration. I had such an experience in the case of a four year old girl who had a penny lodged in the esophagus. Just as I withdrew the penny and tube respiration ceased entirely; artificial respiration was necessary for several minutes before she breathed right again. This was under ether anesthesia. There is danger from the anesthesia itself. A nervous patient I wished to examine for suspected cardiospasm did not behave well under morphine and cocaine so ether was given. Manipulation had hardly begun when both heart and respiration went bad and, as I said above, hours passed during which I feared he would die on my office table. There is danger of edema of the glottis. Preparation for tracheotomy should be made and one able to do the operation should be at hand in nearly every case.

These are the chief dangers in this work. They seem formidable and they should lead us to use the utmost care. But we must remember that every patient with a foreign body lodged in the esophagus is already in danger. The question is: shall we ram something blindly down his throat and push the object down or pull it up or thrust it through the esophageal wall? Or shall we go after it in this other relatively safe and wholly logical manner?

PROPHYLACTIC MEASURES FOR PEOPLE GROWING BLIND IN LATER LIFE.

By S. HELLER, Director of the Institute for the Blind, Hohe Warte, Wien.

Translated by C. S. G. Nagel, M. D., President California Society for the Prevention of Blindness, San Francisco, Cal.

The interest in the blind awakened lately in various parts of the country would seem to justify the bringing more widely before laity and profession the following address delivered before the Vienna Ophthalmological Society, by S. Heller (Prophylaktische Massnahmen für später Erblindende, Zeitschrift für Augenheilkunde, January, 1911).

The policy and training advocated by the author appeals to one immediately as sound for suitable cases; on the other hand, we must not overlook the fact that the question involved (sc. of prospective blindness) is not always simple; in case of slow progress and where it is impossible to know whether we may not ultimately succeed in inhibiting the down grade progress, as in glaucoma, e. g., it must always be a matter of medical tact and judgment, whether to reveal the worst possible alternative of the issue to the patient. The matter is further complicated by constitutional temperament on the part of the patient. Still it remains quite true that the clinical viewpoint per se always inclines rather to concealment of blindness as an eventual outcome as sealing the patient's doom from a therapeutic standpoint, and it is highly meritorious on the author's part to put his pedagogic claim and raisonnement for an opposite prin-

ciple of meeting that fateful eventuality before the profession.

"To become blind in early or full manhood means to the sufferer not alone the vanishing of the outer world with its infinitely manifold effects of form, light and color, but also the exclusion from every regular vocation, loss of independence and deliverance into charitable care. This committal to a passive pseudo existence with all its anguish, is unjustifiable; it is brought about by the traditionally sentimental conception of blindness and its consequences, but is contrary to modern pedagogics for the blind (as based on psychology and elaborated technically), which offer the means to preserve to the blind full activity and restore to them the joy of living. Experience in a practice of thirty-seven years, and more especially the results of the institution founded by me in 1898 for the training of those grown blind in later life, have confirmed in me convictions which I crave the privilege to bring before you, coupling therewith a request by the granting of which you will be able to benefit humanity yet more than you have done heretofore.

"It is as much an irrefutable demand of humanity as a postulate of justice to have every one growing blind be brought under blind-pedagogic instruction unless unfitted therefor through physical or psychical disease. This undertaking must, however, on no account be deferred until blindness is complete, and even less permissible is it to let some time pass by unused after absolute blindness has set in, lest the important and most efficient points of attack for pedagogic measures be reduced considerably or qualitatively lowered or maybe lost entirely. The pathetic picture of petrification presented by so many blind is not, as so often believed, the necessary consequence of blindness, but rather that of omissions and neglects which cannot be sufficiently deplored. Activity and definite aim are important factors for the buoyancy of our being; if they are rendered inactive, if resignation and apathy take their place, the rise of an ever increasing stagnation follows naturally. The great task to restore to one growing blind with the faculty to work, an existence humanly worth while, makes the demand absolute, to begin this training already in the preliminary stages, or better still, as soon as the loss or a decided diminution of vision have been prognosticated by the physician.

"There are weighty reasons for such a procedure. Success of pedagogic influence upon the prospective blind would be quite illusory if one were to start with the premise that for the visual perceptions those of touch, or of touch-hearing, could simply be substituted, or that the connexion between the one and the other could be established by a mere mechanical juxtaposition or sequence. Nor are we indeed dealing here with a transmission per se, but rather with such a one that has assumed the character of permeation. The deterioration of vision causes the sufferer involuntarily to control and complement his deficient visual perceptions by touch. Through systematically and rationally training this process, which becomes gradually and successively a necessity, the qualities of vision as they had originated primarily through differentiation of the power of touch, gradually will transform themselves into those of touch and touch-hearing. Thus are formed specific psychical formations hardly definable, in which the problematical value of perceptions of touch is constantly and materially heightened by their new meaning. This process arouses a vivid interest in the prospective blind and the consciousness of a newly gained possession. Therefore, and because in the same proportion as vision diminishes the new acquisitions are augmented quantitatively and qualitatively heightened, this transmission becomes the compensation that is apt to mitigate in the most beneficial way the surpassingly painful contrast between seeing and non-seeing. These empirical facts have a bearing not

merely on the knowledge but also on the activities of the prospective blind.

"Transmission of the qualities specific to visual perceptions into those of touch has the effect of enabling one grown blind later in life to reproduce and retain the manifold pictures acquired before through the eye and stored in his memory and to make use of them for combinations. The omission, or even the mere postponement, of this important and effectual transmission often brings it about that the memory pictures grow increasingly dimmer and confused, that they are finally submerged and that painful state becomes permanent that we feel in passing when we are absolutely unable to remember a well-known name, a state quasi identical with a second psychical blindness and which leads not rarely to despair and desperate deeds.

"Unforgettable will be the impression I received when a young woman who some years after her complete blindness entered our institution, exclaimed in painful emotion, 'Just think, I cannot imagine any more what my mother looked like.'

"To begin the training of the prospective blind as long as they are still possessed of a certain degree of sight is also imperatively required with regard to any vocational work. In many cases it is the aim to not interrupt the old activities and to so guide the training that for every insufficiency or difficulty that may occur the prospective blind will use curative pedagogic means as substitutes. In that way it is often possible to continue the accustomed life, to reconnect it where fate tore it asunder and to thereby attain to the highest goal that can be striven for in the training of the prospective blind. And if we succeed in saving only part of the accustomed activity or to render possible an occupation related to it, a great deal, and as compared to the threatened absolute passivity a very great deal even has been accomplished. This refers particularly to intellectual spheres of work, since scientific attainments and experience are not lost through blindness because with reading and writing of blind script and stenography, with the transmission of same by typewriter, with the type calculating machine, drawing 'polster' and other auxiliary means, those accomplishments may be preserved and increased and be transposed into results of quite practical value. Very effective has been for this end the 'reconstruction method' elaborated by me, which enables the blind to reconstruct from single words, put down in blind script, sentences and later on compositions, scenes, orations, etc.*

"Of many cases corroborating this theory I will emphasize two as particularly convincing; one refers to a law student who began to be instructed by blind-pedagogic methods as soon as failing of vision had set in. He finished his curriculum, attained to the doctor's degree and is now able with quite a degree of success to work in a prominent law office, at the same time he is pre-

paring himself for the advocate's examination. Apart from being obliged to have legal papers read to him he is quite independent of outside help. The other case proves that education of one growing blind in advanced years is not alone possible but may be even very successful when undertaken at the right time, that means before sight has been lost entirely. This case refers to an author sixty years old, bowed down by fate's blows, who was able after some months of instruction to open a 'Schreibstube,' which for a year past he now has been conducting, with joyfulness regained, independently and with increasing patronage.

"But also in those cases in which talent and material circumstances compel the prospective blind to adopt a trade that has no relation to his former occupation it is much easier for him to learn such, dexterity and proficiency even after the beginning of total blindness are much greater and more surely founded if for the primaries some though reduced degree of vision has been available. That transference demanded for the training of the individual going blind can obtain to the character of permeation only then when the function of touch will be used in such a manner as if the object of comprehension should be produced plastically. Since in the beginning of this practice this function and its results are compared with those of vision it comes about that the most important and most effective experiences gained before blindness may be transposed into acts of the touching hand.

"This fact is also of greatest importance for the orientation in space for the prospective blind and it protests emphatically against the ill advised and insistent offering of assistance which circumscribes the independent movements of the blind, annihilating them finally and thus rendering him doubly miserable. I have known a young blind man who had formerly been an excellent gymnast but who then, thanks to the tender care of his friends, scarcely dared to rise from his seat, and who in walking through his room was pushed rather than guided. Suitable gymnastic exercises begun in the preliminary stages of blindness and practiced daily secure to the beginning blind as well as to the completely blind, not alone independence of movements but they also have a beneficial effect on the whole field of spontaneous resolution.

"Many blind show residual vision; this means a valuable possession as against the absolute loss of visual power; to preserve and increase it is an irrefutable postulate. The most important premise to that end the blind can create himself. It consists in taking care that he preserve the consciousness of the possession of a rest of vision. This is accomplished to the best purpose by never interrupting the practice of vision as long as possible and permissible at all, even when there is very little of it and by using it in connection with touching and touch-hearing.

"This whole exposé is in reality nothing but a single great request that I, a teacher of the blind, ask of you as masters of ophthalmology; I repeat it in conclusion: Give those unfortunates who are going to lose their vision wholly or nearly so in the preliminary stages of blindness over to instruction whereby can be preserved to them their intellectual life, and whereby can be returned their power to work and earn, and hence their independence, their human dignity and a great measure of the joy of living. I know I am asking much, but I am asking in the name of humanity. To keep up the illusion as long as possible only seems to be benevolence; it is purchased too dearly with a life of suffering. Sanity and salvation are only brought by truth."

* A private letter conveys information of a publication in course of preparation; in anticipation of such the author is good enough to elaborate on the most essential parts of his method as follows: "At first I make the blind write down in blind script short sentences from daily life; from each of these sentences the blind selects one word that seems to him the most important. Next, only these single words are put before him and he designates each of them with its initial letter; in case two or several words should have the same initial letter he is permitted to add yet another letter. From these letters the blind reconstructs the word, from the word the sentence, and this latter as accurately as possible. Herein they very soon attain to an unusual fluency as well in the annotation as in reconstruction. This method is practiced thus that the blind has to hear an address and during the hearing make notes of letters; at first such an address contains but few sentences but is extended gradually. At first the reconstruction is done immediately after the conclusion of the address; later the annotations are kept for hours or are not produced and used until the next day. Always, however, original and reproduction are subjected to comparison and in this way correctness is brought about more and more. It is remarkable how much memory grows stronger thereby."

Oakland (NOT Santa Cruz) is the place of the Annual Meeting of the State Society. April 15, 16 and 17, 1913.

GASSERECTOMY.

REPORT OF THREE CASES.

By J. HENRY BARBAT, M. D., San Francisco.

These cases are reported on account of the unpleasant complications encountered during operation. We are struck by the fact that this operation, when performed on the cadaver is very easy of accomplishment, but on the living body we are confronted with the one thing which makes intracranial surgery extremely difficult and at times fatal, and that is hemorrhage. While we now have, thanks to Harvey Cushing, Victor Horsley and others, numerous means to combat hemorrhage in this class of work, it will still remain the *bête noir* to the surgeon, and tax his resources in many cases. From the time we make the first incision until the last suture is placed we have to be on the alert to prevent the loss of too great a quantity of blood, and the conservative surgeon will often divide his operation into several stages rather than go on after a sudden severe loss of blood. The danger from sepsis following repeated operation can only be avoided by the most perfect asepsis from the beginning until the end of the operations, by the accurate closure of the scalp wound, and the administration of hexamethylene tetramine before and after the operations. Injury to the brain substance must be avoided by extreme care and gentleness in every manipulation inside the skull, and every advance made with the greatest deliberation.

Brilliance in brain surgery does not consist in being able to remove a tumor or a Gasserian ganglion in a few minutes, regardless of the patient's future, but in getting results, and *en passant* I might well say that this is the only principle which should guide us in any and all operative procedures. In spite of all the care which we may exercise we are often confronted with anomalies and unexpected conditions which may compel us to stop short and leave the operation incomplete.

Case 1. G. J., aged 55 years, farmer; had suffered from neuralgia of the trigeminus, right side, for about nine years. He was treated with medicines for three years without any great relief. I injected a 1½% solution of osmic acid into the supraorbital, infraorbital, mental and large palatine nerves according to Murphy's technic, in February, 1906, with perfect result for one year, when the infraorbital branch became painful, and I reinjected it with osmic acid. He was free from pain for two years, when he noticed that the sensation was beginning to get normal again and in a short time the pain returned in the second and third divisions of the nerve. I then used alcohol as the injecting material, but the relief was short and the pain returned with extreme violence following a sudden exertion. This did not yield to large doses of morphine, and the patient readily accepted my offer to remove his Gasserian ganglion. His general health was fair, but he had a marked arteriosclerosis. He was given 10 grains of hexamethylene tetramine every four hours for 24 hours preceding the operation. Head prepared in the usual manner, and half an hour before the operation he was given hypodermically morphine sulphate grains ¼, scopolamine hydrobromate grains 1/100, atropine sulphate grains 1/150. A horseshoe flap was made with the base just above the root of the zygoma, the bleeding was very free and required a large number of ligatures. Two small trephine openings were made at the lower angles of the

scalp incision, and the skull opened with a DeVillbiss bone forceps. The osteoplastic flap fractured at the base and turned down. I always make two bites with the bone forceps in the direction in which I wish the base of the bone flap to break. This weakens the bone considerably, and insures a correct break. When the bone flap was turned down the bleeding was profuse, the worst being at the upper margin of the wound which required packing between the skull and dura.

The dura was detached down to the foramen spinosum and the middle meningeal artery tied. Continuing the detachment of the dura a violent hemorrhage occurred which appeared to come from the cavernous sinus. After repeated tamponade the bleeding continued and it was deemed better to postpone the operation, so a small tampon was placed which controlled the hemorrhage and the skull closed. A tampon was also left at the upper margin of the wound as the bleeding was still profuse. The scalp was accurately sutured and dry dressings applied. The patient reacted perfectly and two days later the wound was reopened. As the last bit of gauze was removed from the base of the skull the hemorrhage recurred but could be controlled by placing a very small strip of gauze against the bleeding point which did not occlude the operating field. The second and third branches were easily exposed and sectioned at the points of emergence from the skull. Some bleeding occurred from the foramen ovale which was controlled with a piece of catgut packing. By grasping the cut ends of the nerves in a forceps and making traction the Gasserian ganglion was brought into view and the portion removed which gave origin to the two lower nerves.

It being impossible to check the hemorrhage from the cavernous sinus without leaving a tampon, I packed with a strip of gauze which was carried to the lower angle of the wound. The osteoplastic flap was replaced and the scalp accurately sutured, leaving only a very small aperture for the gauze strip. I began removing the strip on the second day and pulled out the last portion on the fifth day without any recurrence of the bleeding. The external wound healed perfectly and the patient went home to Morgan Hill 8 days after the second operation. Besides a paralysis of the second and third branches of the fifth he also had a paralysis of the third, fourth and sixth nerves on the right side which did not clear up for six months. Patient perfectly well up to present time.

Case 2. Mrs. H., aged 76 years, had been suffering with tic douloureux of the left side of the face involving both the superior and inferior maxillary branches of the fifth nerve for several years. The spasmodic pains would be started by the slightest irritation of any of the branches of the fifth nerve, recur every three minutes and last for hours. I injected the four branches with osmic acid as in the last case with complete relief for exactly two years when a second injection was given which lasted one year. The third injection was given in February, 1908, and lasted about two and one-half years, when the pain recurred, but the patient was able to hold out until February, 1912, when she came to me for operation.

She had lost considerable flesh on account of not being able to eat, as every mouthful caused excruciating pain. Heart and lungs in good condition, but arteries rather hard. The first operation was done on February 14, 1912. Furious hemorrhage followed the cutting of the scalp flap which was controlled with Hartman forceps on the concave edge and with ligatures on the convex edge. Both trephine openings cut branches of the middle meningeal artery and had to be tamponed. A third trephine hole also bled freely and had to be plugged for some minutes. It was then found that the blade of the DeVillbiss forceps was not deep enough to reach the inside of the skull which was at least ½-inch thick at the trephine openings. I

was obliged to cut a channel $\frac{3}{4}$ -inch deep through the outer table of the skull corresponding to the horseshoe flap; this permitted the DeVilbiss forceps to be used and the skull was rapidly cut open. When the base of the flap was broken and turned back the whole of the exposed surface bled furiously, and by the time it was controlled with hot water, gauze pads and hemostats, the patient showed signs of shock and the osteoplastic flap was replaced and the scalp accurately sutured.

She rallied quickly and was kept under hexamethylene tetramine until the next operation five days later. When the bone flap was lifted it started considerable bleeding which was, however, easily arrested. The middle meningeal artery passed through a groove which was bridged over at short intervals with spiculae of bone, so that every attempt at separating the dura from the skull was followed by fresh hemorrhage, and laceration of the dura which allowed the escape of the cerebro-spinal fluid. The artery was finally caught and ligated at the foramen spinosum. The inferior maxillary nerve was uncovered and cut through just before its emergence through the foramen ovale. The last stroke of the knife brought a rush of blood which almost caused the patient to collapse. A rapid tamponade stopped the hemorrhage, but it would have been unwise to proceed with the operation. I believe that the inferior maxillary nerve in this case crossed the internal carotid artery without any interposition of bone and that I punctured the vessel with the point of the knife.

The tampon was left in situ and the flap again sutured in place. The patient recovered consciousness in a short time but found difficulty in talking. This condition increased, and she found it impossible to make known her wants by talking, and showed marked symptoms of pressure on the speech center. The skull was reopened $2\frac{1}{2}$ days after the last operation, with practically no bleeding; the removal of the tampon uncovering perfectly the region of the ganglion which was resected with its two lower branches, and the head closed. Speech returned completely in 5 days and the patient left the hospital 10 days after the last operation perfectly well.

Case 3. T. A. C., aged 63 years, blacksmith, had neuralgia involving all branches of the fifth on the right side. I injected osmic acid September, 1905, with perfect result except that the auriculo-temporal branch began to get very painful one year later, and was exposed and injected under local anesthesia. No further trouble was experienced for one more year, when the inferior maxillary began again and was injected in October, 1907. This lasted for four years, when a tic began which became rapidly unbearable, and was not relieved by injection of alcohol into the inferior dental and infraorbital, so operation was advised. Patient had marked arcus senilis, but was otherwise in fair condition. Very little bleeding was encountered at any stage of the operation. The dura was loosened along the anterior surface of the petrous portion of the temporal bone until the ganglion was reached and exposed. It was lifted out of its bed and detached from the dura, and the outer part resected along with the second and third branches. The bleeding from the foramen ovale was controlled by forcing a piece of folded up catgut into the opening. The middle meningeal artery was not ligated. Flap sutured and patient went home in ten days well.

With regard to hemostasis, the article by Harvey Cushing in the *Annals of Surgery* July, 1911, gives the best résumé which has appeared on the subject, and two of the methods given are relatively new. The use of small particles of either muscle or blood clot placed directly on a bleeding point and held there for a few minutes gives us a most use-

ful and efficient method of controlling hemorrhage from otherwise inaccessible places. The use of Cushing's silver wire staples is also a marked addition to the armamentarium of the surgeon, especially in checking bleeding from vessels of the pia or brain proper. When a vessel such as the middle meningeal or the small petrosal is cut or torn too close to its bony foramen to be able to grasp it with forceps the bleeding may be stopped by plugging the foramen with a small piece of fine catgut which has been tightly folded up. The nerves had better be cut with scissors instead of the knife, and the possibility of puncturing the carotid artery avoided. We must be always on the alert for anomalies, which, however slight, may cause most serious complications. It is astonishing how rapidly patients recover after these operations, provided the work has been carefully and accurately done and the brain substance not injured. I have seen no harm from opening of the dura, and the escape of the cerebro-spinal fluid; on the contrary, it facilitated the operation, by giving much more room to work in without making as much pressure on the brain.

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PACIFIC ASSOCIATION OF RAILWAY SURGEONS.

Minutes.

The Tenth annual meeting of the Pacific Association of Railway Surgeons was held in San Francisco, August 30th and 31st, 1912; meeting called to order by the President, D. O. Hamlin, at 2:30 p. m.

Address by the President.

The following applications for membership were read: Drs. W. T. Cummins, San Francisco; Z. T. Malaby, Pasadena; R. R. Hammond, Stockton; Chas. R. Harry, Stockton; Barton J. Powell, Stockton; J. G. Mackay, Truckee; C. W. Page, Berkeley.

Motion made by Dr. Magee, seconded by Dr. Powell that Secretary cast ballot. Carried.

Secretary cast the ballot and applicants were duly elected as members.

President: There being no further new business we will proceed to the scientific program, as prepared by the Committee of Arrangements.

1. "Tuberculosis Among Railroad Employees"—Jno. C. King, Banning.
2. "A Pathological and Sanitary Study of a Typhoid Outbreak." W. T. Cummins, San Francisco.
3. "A Few Remarks on Typhoid." Geo. R. Carson, San Francisco.
4. "Supra-pubic Prostatectomy." Guy Cochran, Los Angeles.

5. "Fractures of the Patella—Treatment of." Rexwald Brown, Santa Barbara.
6. "The Treatment of Surgical Shock." R. L. Ramey, El Paso.

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7. "Report of a Case of Multiple Sarcomata." J. H. O'Connor, San Francisco.
8. "Hook Worm Disease and Its Importation Into California." J. W. Colbert, Albuquerque, N. M.
9. "Observations on Symptoms and Treatment of Suppurative Appendicitis." R. T. Legge, McCloud.
10. "Some Conclusions Regarding the Present Knowledge of the Vermiform Appendix." C. J. Teass, San Francisco.
11. "The Eye and Its Minor Injuries." A. C. Seely, Roseburg.
12. "Fractures" (Illustrated Lantern Slides). W. B. Coffey, San Francisco.

President: The scientific program now being completed we will proceed to unfinished business.

Next in order is the election of officers.

President.—Dr. David Powell, Marysville, was nominated by Dr. Coffey, seconded by Dr. Legge.

Dr. Morton moved that nominations be closed and Secretary cast the ballot. So ordered.

1st Vice-President.—Dr. S. Iglick, Orland, was nominated by Dr. Legge, seconded by Dr. Keys.

Dr. Kuykendall moved that nominations be closed and Secretary cast the ballot. So ordered.

2nd Vice-President.—Dr. S. J. Gardner, San Francisco, was nominated by Dr. Ketcherside, seconded by Dr. Carson.

Dr. Cochran moved that nominations be closed and Secretary cast the ballot. So ordered.

Treasurer.—Dr. E. M. Keys, present incumbent, was nominated by Dr. McCleave, seconded by Dr. Carson.

Dr. Gardner moved that nominations be closed and Secretary cast the ballot. So ordered.

Secretary.—Dr. G. R. Carson, present incumbent, was nominated by Dr. Coffey, seconded by Dr. Legge.

Dr. McCleave moved that nominations be closed and Secretary cast the ballot. So ordered.

President: There are two members to be elected on the Executive Board; nominations are in order.

Dr. R. T. Legge of McCloud and Dr. R. L. Ramey of El Paso were nominated by Dr. Coffey, seconded by Dr. Pinniger.

Unanimously elected.

Executive Board complete.—Drs. S. D. Pinniger, R. T. Legge, R. L. Ramey.

President: Any further business?

Motion was made by Dr. Edwards that this Association prepare a resolution to be sent to Members of Congress endorsing the "Owens Bill."

Dr. Crocker advised that the Texas Medical Association had adopted a similar resolution.

Motion seconded by Dr. Miller. Carried.

A vote of thanks was tendered the retiring President, Dr. Hamlin.

Motion made and seconded that meeting adjourn, to meet in San Francisco in 1913. Carried. Adjourned.

PRESIDENT'S ADDRESS.

By O. D. HAMLIN, M. D., Oakland.

Friends and Fellow Members:

Our Association is practically new on this coast, but we have done good work, and some very interesting scientific papers have been read before this Association at different times. There are two reasons for our meeting: the scientific program and the social opportunity. These meetings give members who are doing this class of work throughout the Pacific Coast an opportunity of becoming acquainted, and in our work the social opportunity is an important one—it is quite an advantage.

I had an opportunity of attending the meetings of some of the Railway Surgeons in the East this year, in Baltimore, and some of the papers were superior to many papers read at the A. M. A., so that these associations in the East are doing a great deal of scientific work. The railway surgeons are practically new all over and there is no reason why we should not do better than we have done, although there is no comment on the work that has been done in this association. We should get as many men in our districts as possible to join the association and attend the meetings to add to the interest of the scientific program.

THE TREATMENT OF SURGICAL SHOCK.*

By R. L. RAMEY, M. D., El Paso, Texas.

My subject, "The treatment of surgical shock," is one that I am very much interested in. There is perhaps no one condition that we have to encounter that is so misleading and deceptive. Oftentimes you have seen patients recover whose conditions were seemingly hopeless, and on the other hand you have seen life gradually slip away when there was apparently no reason for it. Before we go into the treatment of this condition we must go briefly into the physiology which is defined by most authors as a profound depression of the vasomotor nervous system, not necessarily following an injury but arising from any condition that may produce an impression upon the vasomotor center sufficient to cause paralysis or exhaustion of these nerves. In consequence we have a lowering of the blood pressure, an impairment of the heart's action and a disturbed respiration. Dr. Crile, who has, perhaps, done more research work along this line than any other man, has recently advanced a new idea of the physiopathological changes in the brain cells during a period of shock; that is, any stimulant, either psychic or traumatic, transmitted to

* Read before the Tenth Annual Meeting of the Pacific Association of Railway Surgeons.

the brain cells for a sufficient length of time or sufficiently strong may produce a disintegration of these cells, which may cause profound shock, collapse, or even terminate in death.

During the first half of the 19th century the mechanical conditions governing the circulation of the blood were carefully studied and at that time it was thought that the simple elasticity of the blood vessels was sufficient to control the circulation, but has since been proven by Claude Bernard and others that there is a more powerful influence that enters into the control of the circulation, viz.: the vasomotor nerves. The arteries are richly supplied with these nerves; also the veins to a very limited extent. The veins also being more deficient in muscular fiber than the arteries, have less power of contractility. The arteries are held in a state of constriction and in this manner keep the heart and coronary arteries filled with blood, so it is easily to be seen when these nerves are paralyzed the arteries become dilated and empty themselves into the veins, thereby diminishing the amount of blood both in the heart and the arterial circulation, hence lowering blood pressure including the pressure in the coronary arteries, producing a feeble and more rapid action of the pulse. It has been demonstrated that the great majority of this blood accumulates in the splanchnic area. Mall and others have shown that the portal system is supplied with vasomotor nerves somewhat similar to the arteries, while it is yet questionable whether the veins of the rest of the body are so supplied to any extent. Under normal conditions one can insert the finger into the foramen of Winslow thereby damming the blood from the general circulation produce all the symptoms of shock.

The treatment of this condition resolves itself into two classes, the preventive and curative. The preventive measures are such as getting your patient in the best possible condition before operation, clearing the bowels well but not purging, having him take freely of fluids several days before if possible. One of the most common causes of shock following abdominal section is the psychical effect of having to undergo a big operation. I have often seen patients go on the table with a nervous chill and continue in it throughout the operation. These patients as a rule take the anesthetic badly, and often make poor recoveries. I feel it my duty always to make the patient as comfortable as possible over the outcome of the operation without clearly deceiving him. The family and friends should, of course, know the true condition. If he is already in a state of shock from traumatism or otherwise it is always good surgery to wait unless you have a hemorrhage, for example, in the abdominal cavity or in the cranium, or elsewhere, which, of course, must be controlled immediately. The preparation of the field of operation should be the simplest that assures perfect technic. I believe it advisable to give a hypodermic of morphine and atropine in all cases before administering an anesthetic. Crile, Yandell Henderson, of Yale, Bloodgood and others are strong advocates of the use of nitrous oxide as an anesthetic, claiming that it is followed by practically no shock at all.

Blocking the field of operation from the central nervous system as described by Dr. Crile producing an anoci association is very effective when it can be done, but in some instances it cannot be done with any degree of satisfaction. It is in this class of cases we should consider the administration of spinal anesthesia, especially in injuries to the pelvic organs and of the lower extremities when for any reason general anesthesia would be dangerous and local anesthesia inapplicable.

The curative treatment: First and foremost in my opinion when drugs are indicated (and I want to emphasize we should be very careful not to over-stimulate a worn-out and exhausted heart) comes the intravenous administration of adrenalin, since we have a deficiency in the circulating blood we must direct our attention to the correction of this condition, and this, I believe, is most promptly met by the infusion of adrenalin. This can be administered with an ordinary infiltration syringe containing an ounce or so of saline and half a drachm of adrenalin injecting directly into the veins, it being a powerful stimulant to the vasomotor center as well as to the bloodvessels themselves. This can be done without incising the skin, allowing the arm to hang downward, applying a tourniquet just above the point of election. The needle can be readily inserted into the vein, thereby saving a great deal of time. In case of emergency the ordinary hypodermic will suffice, which should always be kept in reach during an operation. After the injection of adrenalin into a vein I have imagined I could detect a rise in blood pressure in less than ten seconds. Crile has of late advocated the use of adrenalin in saline infusion intra-arterially, injecting it towards the heart, claiming to get a more speedy effect from the drug. I do not believe it is necessary to use much saline unless you have had hemorrhage. In shock the amount of blood is not supposed to be diminished, but unequalized, the veins containing the greater amount of all the blood in the body, so you can see by throwing a big amount of saline into the veins already distended you may mechanically flood the right heart and do great harm. Of course, if there has been loss of blood an intravenous infusion of two or three pints of saline is strongly indicated. The patient should be kept as quiet as possible. All movements tend to increase the collapse. And if there is an injury it should not be interfered with until later unless there is hemorrhage, as above stated, which, of course, should be stopped. The patient should be kept warm with blankets, hot water bottles, etc. Hot coffee should be given by the rectum, or a hot saline injection if the coffee is not convenient. Ordinarily the foot of the bed should be elevated to increase the blood pressure in the heart and brain. However, if this produces a cyanosis the patient should be brought to a horizontal position. Bandaging the extremities, forcing the blood back into the body is recognized as a good mechanical treatment. Atropine is, in my opinion, second only in importance to adrenalin, given in one-fiftieth to one-one hundredth of a grain. Hare says of atropine, to use his own words: "The drug acts as a powerful stimulant

upon the vascular system; it dilates the capillaries of the skin but contracts the vessels of the splanchnic area. This is why it is so valuable in shock and collapse; it drives the stored-up blood in the veins of the splanchnic area into the general circulation, thereby raising blood pressure." Potter also says in this connection that atropine stimulates the vasomotor ganglia throughout the body. The use of atropine can almost be restricted to those cases in which you have marked pallor with relaxation of the muscles and profuse perspiration. The use or abuse of digitalis, strychnine and nitro-glycerine that has so long been used in these cases indiscriminately I believe to be without sound therapeutic foundation, to say the least. And indeed, in my opinion, may prove even dangerous. Take for instance, nitro-glycerine, the most prompt and powerful of the three; all authorities claim it acts by paralyzing the vasomotor and sympathetic nervous system, and the muscular coats of the arteries themselves. It may stimulate the heart and increase its force, but in so doing it may be harmful. We already have a paralyzed vasomotor center, consequently we have a deficient amount of blood in the arteries, therefore we do not want the heart stimulated until it has something to contract upon.

Digitalis acts particularly by contracting the heart muscle itself. Every form of a dilated heart arising from any pathological condition is a fit subject for digitalis; therefore I believe that digitalis is beneficial in those cases where you have shock from prolonged exhaustion of your vasomotor center, with a weakened and dilated heart muscle, but I doubt its efficiency in an acute collapse. Its action by stimulating the pneumogastric would be emptying the heart and arteries of what little blood they have left to contract upon. Digitalis is a good drug, but not until you have established your vaso constrictors.

We will now speak briefly of strychnine. Its action is somewhat similar to digitalis. I do not believe strychnine is of much value in acute shock. Indeed, it may do harm. There is one other drug that is commonly administered to patients found in shock—morphine. Under no circumstances, in my opinion, should it be given to a patient if he has reached the state of profound collapse, but if there is consciousness of pain, or restlessness, it should be administered. The household remedy, whisky, which is always on hand, should not be given at all. It may obscure both the cause and extent of the injury. The Crile pneumatic suit which acts by forcing the peripheral circulation to the center, thereby increasing the pressure, does not tend to relieve the true cause of the condition. It acts simply in a mechanical way. Sometimes by the simple dilation of the sphincter and you may relieve a patient in acute collapse. The transfusion of blood which was so commonly used in olden times has been a recognized procedure since the early part of the 19th century, but had practically become obsolete until recently, when it was again revived. I believe it should be resorted to only when there has been a hemorrhage; even then I think most cases best relieved by saline infusion.

Gentlemen, in conclusion I wish to state that

it is my opinion that many sudden deaths following accidents and tedious operations that are attributed to other causes such as emboli, thrombi, etc., are due to shock, and I repeat by the constant vigilance of the anesthetist and the surgeon, that this condition in many cases can be avoided. The drawing upon a pedicle, the rough handling of the intestines, all tend to produce shock and should be avoided. There are critical moments when by prompt action our patients' lives may be saved.

Discussion.

Dr. C. J. Teass: I agree most heartily with what has been said regarding the mind and the limited use of drugs, and will not consume time by repeating anything that has been said, but I have not heard the subject of heat mentioned and I feel that it is too important to allow the subject to be closed without emphasizing a few points about keeping the patient warm. I have seen many a badly injured patient brought into the operating room, placed on a cold table, and kept exposed for many minutes while a constant process of scrubbing the entire body was taking place, the evaporation from the surface adding constantly to the patient's shock. Rather by far, not scrub such a patient at all, for the simpler you make your technic, and the quicker the patient is made as comfortable in bed as possible, the greater will be his chances toward ultimate recovery. I remember only too well when I was doing pioneer surgical work in several different mining camps, that I soon found out that prolonged scrubbing and ether anesthesia cost the lives of several patients with badly mangled limbs, so I soon simplified my technic by injecting morphine with cocaine into the exposed nerves, washing with tincture of iodine, and cutting out excess of dirt with the scissors and using silk-worm gut that had been kept in tincture of iodine after simply soaking it in hot lysol solution for a few moments. After the adoption of such a simple and quick method of handling emergency cases, they ceased to give me such great concern, for I knew they would get well.

Dr. Rexwald Brown: The point of the mental attitude of the patient toward the doctor is to me one of the most interesting elements entering into shock. The patient who has come to the doctor's office knowing that surgical procedures are necessary, realizing that they are necessary, going home and talking the matter over with his friends and family, with his mind against operative procedure all the time, is liable to shock. The woman who goes into the operating room with the idea that she is likely to die, in a large number of instances will die, merely from shock. Crile has called attention to this. This was brought home to me recently. Two years ago a patient came to me in need of operation (hysterectomy). She fought against it for two years, but finally submitted. She went into it saying that she would die, although it was a simple hysterectomy. She died three days after the operation from nothing in the world but shock.

Dr. Powell: In the treatment of surgical shock we must be guided entirely by the cause of the shock. In hemorrhagic shock the treatment must be different from that of nervous or psychological shock. It is well enough for Dr. Morton to tell us that he can take a patient into the operating room and under the pretense of making an examination, perform a hysterectomy without her knowing that he has operated on her. But when patients come to us seriously injured, and suffering from shock we cannot treat them that way. So far as the use of drugs is concerned, when the patient is nervous and dreads surgical procedure, I think a hypodermic of morphine will put him in better condition, and there will be less danger of subse-

quent shock. If the shock is caused by nervous depression, stimulants, warm applications to the body surface, and morphine is the best treatment. Adrenalin has been spoken of favorably and is undoubtedly one of the best arterial stimulants, but its effects pass off too quickly.

Dr. Hildreth: The paper just read seems to devote more time to injury than to acute shock. I would call attention to the fact that this is a railroad society, and we are supposed to have principally emergency cases where rapid action is necessary. Perhaps I will make some innovation here. I have treated a good many cases of injury and shock following in an otherwise healthy individual in full possession of his mental and physical faculties. The influence of shock seems to me to be a depressing one upon the pneumogastric ganglion and the organs in control of that ganglion which draws three pairs of nerves of the stomach and heart and also influences the portal circulation. I conclude that in shock it would be necessary to establish peristalsis, especially of stomach. In the administration of a drug, there is one in which I now place my reliance. I had a case with both legs mashed to pieces; the shock increased, and the patient was sinking rapidly. I administered by mistake a good dose of apomorphine. In less than ten minutes the patient said to me, "Doctor, I will make it." Then I began to figure out what I had done. The next case was in my private practice, a lady severely injured and determined to die—and I thought she would. I gave her apomorphine and diverted her mind from the purpose of dying. Our surgeons will bear me out that the crushed cases are the worst ones in our practice, although they do not bleed to any extent. It would be almost impossible to take charge of a badly injured case in a country practice without letting some one give that patient whisky. I had a case last summer of rattlesnake bite, on middle finger of left hand; the victim shook off the snake and did the natural thing of course; he sucked on it right away and before I got there he had taken $1\frac{1}{2}$ pints of whisky. I loaded him with apomorphine and got the whisky out of him. I told him he didn't need any more whisky, but to keep right on sucking. I would suggest that when you find all other means fail, you give them a dose of apomorphine. You may find it will help you as it did me. I find in these cases of shock by reptile poisons much mental influence; this as well as the "nervous paralysis" seems relieved by apomorphine, and in no case in which I have used it for "shock" has emesis followed.

Dr. O. D. Hamlin: Undoubtedly to all surgeons and men doing emergency work, the question of shock and hemorrhage is one to which we cannot give too much attention. Dr. Powell struck my idea with the classification of shock—all cases are not due to the same cause. In treatment I think alcohol and morphine are often valuable. Dr. Ramey is against alcohol, and I think that in cases of surgical shock that is true; but in psychical (?) shock there is nothing better than alcohol. In the surgical shock due to crushing of limbs or intestines, the emptying of the arterial system into the venous, you have a different pathology, and adrenalin is, I think, one of the most important drugs. It has been proven by experiments that the blood pressure will keep up under adrenalin 12-18 minutes; it then lowers very rapidly. If you are working for a very short period, there is no drug in the world which takes the place of adrenalin. Where you have gross pathology, as a crushed limb, where impulses are continually being carried through the nervous system, morphine is ideal. In intestinal work, where shock comes from manipulation of the intestines, adrenalin would be valuable. But in thinking of shock, we should classify it. When you have shock and hemorrhage combined, you must replace the lost blood by blood or salt

solution. I think the classification is of great importance, and no one treatment will cover the whole subject.

Dr. Ramey, closing discussion: At the Texas State Medical Association meeting, I heard a great deal of emphasis laid on the idea of fear by Dr. Crile. The speaker said that if fear could be eliminated absolutely you would have hardly any shock, and he went so far as to say that if you could block your field of operation, shutting it off from the central nervous system, there would be no shock at all; you could operate as long as you wanted without shock to the patient. He claimed that neither ether nor chloroform produces this condition. He said that if you operate under ether, every impression is carried to the central nervous system, which is not the case with nitrous oxide anesthesia. As to the use of drugs in shock, I referred to nearly all that have been used simply to say that I do not believe much in them. I rely principally upon two drugs when indicated in the treatment of shock—atropin and adrenalin; the latter should always be given intravenously with a little saline solution. I doubt that fear plays as important a part in the production of shock as advanced by Crile. We all know that extensive burns and traumatic injuries following railway accidents produce the most profound shock. The treatment of shock following laparotomies consists principally in its prevention as I stated in my paper.

TUBERCULOSIS AMONG RAILROAD EMPLOYEES.*

By JNO. C. KING, M. D., Banning.

Tuberculosis is ubiquitous, therefore railroad employees suffer from it. The percentage of morbidity is probably less among them than among any other large mass of employees, except those in the army and navy. They are obliged to submit to physical examination prior to employment. Life insurance actuaries claim that examination discriminates in favor of the company for a period not to exceed five years. Likewise, the examination of our men protects the company for only a limited, though uncertain, time. In the practice of my specialty I see many cases of tuberculosis among railroad men, from both eastern and western roads. As a rule, the hygienic environment of our men is above the average, particularly on this coast; partly owing to the climate, in part to the nature of the work, and largely to the fact that our company officials are quick to remedy hygienic defects. It has several times happened that superintendents and roadmasters have remodeled station and section houses in my district, at my request, and have changed plumbing and drainage.

In attempting to group the men we find that engineers and firemen are quite exempt from the disease. On the other hand, Pullman conductors furnish a large quota. Mexican peons, laboring as section hands, are frequently tubercular. Trainmen are not subject to the disease as commonly as other men of similar social grade. The same is true, I think, of shopmen. When these people succumb it is due to unhygienic housing and living rather than to shop conditions. Office men are attacked more frequently than other employees. And yet, they suffer less than occupants of average busi-

*Read before the Pacific Association of Railway Surgeons, San Francisco, 1912.

ness offices, because railroad offices usually provide larger cubic area of fresh air than others. On the whole, there are few lines of employment open to workingmen where the conditions of labor involve so little menace from tuberculosis. The fact remains that a certain number of our men do have the disease. What shall we do with them?

The chief surgeons of several of our California roads have furnished me with data which I beg leave to present. Dr. E. A. Bryant, of the Pacific Electric, writes: "Impossible to give accurate percentage, but should say that not more than one-half of one per cent. are tubercular. The policy of the company is not to accept for employment persons infected with tuberculosis. We have a rule not to admit tubercular patients to the hospital, but give them home treatment. Of course, in case of need the rule is not enforced. The company does not provide sanatorium treatment.

Dr. Huntington, of the Western Pacific, states: "As the Western Pacific Railway Company is a recent organization, we have discovered a very small percentage of our employees suffering from tuberculosis, not to exceed one-fourth of one per cent. Employees who have acquired tuberculosis while in the service of the company receive marked consideration. The company has, thus far, maintained no hospital, but has contracts with several hospitals. Tubercular subjects are permitted to remain in a hospital for a reasonable length of time. No definite limits have ever been established. The matter of the establishment of a tubercular sanatorium has never been considered."

Dr. Cochran, of the Salt Lake, reports: "We have from our own office not more than half a dozen cases per year. The policy of the company is to eliminate such cases from the service. We have no arrangement for admission to the County Hospital, for we dispose of each case as we are best able to under the circumstances individually, usually caring for them at their homes or sending them to a sanatorium, for the company does not provide for any treatment of such cases. Each case is dealt with as seems most advisable for that individual."

Dr. Morrison, of the Santa Fe, states: "We keep no special record of employees suffering from tuberculosis. The number is small, owing to the physical examination before entering the service. Under our rules, chronic diseases acquired prior to entering the service are not subject to treatment by our Hospital Association. Each case found suffering with T. B. is handled on its merits. If a man has been in the service a number of years we care for him as long as possible under conditions which seem to be required by his particular case. At our Association Hospital at Albuquerque we have a number of very fine 'tent houses' where we have sent a number of T. B. cases during the past four years, and have had very satisfactory results."

Dr. Ainsworth, of the Southern Pacific, records: "Of 2780 cases treated in the hospital for the fiscal year ending June 30, 1911, twenty-seven were tubercular; of 76,139 treated outside of hospital during the same period, 151 were tubercular (ap-

proximately one-fourth of one per cent.). Employees with tuberculosis are kept on the company's payroll as long as they are able to report for active duty. Tubercular employees, the same as all other employees, are entitled to one year's hospital privileges. The company has provided special facilities for the care of tubercular patients at the General Hospital in San Francisco."

It will thus be seen that while tuberculosis is uncommon, each company must face the problem. I wish to comment on two or three phases of the subject and to suggest that better opportunities for recovery be offered to those included in the title of this address than can be afforded in a general hospital.

All modern advance in our knowledge of tuberculosis may be summed up in early diagnosis and rational treatment. Our conception of its pathology has not changed during the past five years, except as regards the (yet doubtful) constant presence of the tubercle bacilli in the blood stream. It would seem that early diagnosis is the key to the situation. In my special work about one hundred physicians are in the habit of sending to me occasional cases of tuberculosis. As the years pass I note an increasing number of patients who come in the incipient stage, with a corresponding increase in the percentage of recoveries. Some of these gentlemen almost invariably send very early cases, with others the reverse is true. I have noted, also, that men who send incipient cases are either nose, throat and chest specialists or general practitioners, while men who specialize in surgery, gynecology and neurology more frequently send advanced cases. I am, therefore, inclined to believe that the common run of general practitioners recognize the disease earlier than do their more noted colleagues who have achieved greater distinction. Aside from those who have come to me primarily as company surgeon, I have never had a railroad employee referred to me in the incipient stage. There are, doubtless, many explanations of this fact, but one reason is that our attention is concentrated upon apparently more serious conditions. These people seem to have so little the matter with them.

Early diagnosis is an art rather than a science. There are no pathognomonic symptoms. The physical signs are yet doubtful. Tubercle bacilli are never present in the sputum until the second stage; that is, until some breaking down of lung tissue has occurred, however minute it may have been. Even then many samples of expectoration may not contain them. While presence of the bacillus is positive evidence, its absence is without diagnostic import. The tuberculin reactions, as the Moro test, are valuable, but the reaction may be caused by latent tuberculosis, by some old, encapsulated tubercle, when the disease does not even threaten activity. Repeated examinations have convinced me that the blood picture is usually normal, even the hemoglobin content. Blood pressure still remains unaffected and Arneth's index, if ever useful, is a later phenomenon. Examination of the urine, unless lesions exist primarily in the kidney or bladder, does not illumine the problem. The

Diazo reaction occurs late, if at all, and indicanuria and phosphaturia are not significant. The importance of the daily temperature curve cannot be exaggerated, but occasional office observations are worthless. An accurate thermometer should be used, at least every two hours from early morning till late evening. The curve will slowly rise from 97° or 98° to 99° or 99½°, to fall again as night comes on. This curve will be quite steady and very persistent. If it continues, without intermission, for ten days or two weeks, the case is more than suspicious. The patient will complain of a little physical weakness and loss of ambition. He will not complain of poor appetite, but inquiry will elicit the symptom, together with somewhat vague evidence of indigestion or mal-assimilation and consequent decline in weight.

There is often a little pleurodynia, fugitive myalgic pains in the intercostal muscles. A frank attack of pleurisy is almost always tubercular. The nasal and buccal mucous membranes are apt to be flabby and pale, more noticeable because the percentage of hemoglobin remains about normal. Pottenger's sign can sometimes be detected. A small, fine, moist rale may be heard—only after a cough. Occasionally a little bloody expectoration brings the patient to one's office. Unless its origin in the nose or throat, or from organic heart disease, actinomycosis or malignancy can be definitely determined we must assume it to be tubercular. The patient's family history must be searched to determine his tendency to disease. His personal history, environment and associations must be carefully investigated.

These few points are mentioned merely to indicate the difficulty of early diagnosis. It is comparable to the early diagnosis of gastric cancer and failure bodes the same disaster to the patient. The clinical artist will interpret the picture. The average man will prescribe some worthless tonic and, months later, will send his patient to the sanatorium—when it is too late. We cannot expect the average busy railroad surgeon to devote the necessary time to these cases but every railroad has on its staff competent men to whom the patient can be referred for verification of suspicious symptoms. The time will arrive, of course, when any one can make the diagnosis; by that time it is often a mere preliminary to the autopsy.

The successful treatment of these early cases is a distinct specialty. The work and the conditions of work in a general hospital are so foreign to the needs of these patients that the very best things can rarely, if ever, be done for them there. The necessity for daily expert supervision cannot be too forcibly insisted upon. Many surgical risks recover notwithstanding faulty asepsis. So, too, many consumptives get well without modern sanatorium treatment. In each instance, however, the percentage of good results is far below modern possibilities. The value of specialization is conceded in principle. The oculist, the surgeon, the alienist each covers a recognized field. But every man in the profession deems himself quite competent to treat pulmonary tuberculosis. Now the average man's success in this business is comparable to the ab-

dominal surgery of the general practitioner. In either case some brilliant results may be secured, but in both instances there will be inability to successfully cope with unexpected complications. It is improbable that an audience of surgeons would be interested in the details of sanatorium treatment. And yet, its value consists of attention to detail and of adapting the details to the individual. The diet, regulation of daily rest and exercise, hydrotherapeutic measures and dozens of other items vary with each patient. Even good surgical nurses do not apprehend the needs of this class and to achieve results the physician must be in daily contact with the patient.

Another point! For many years some particular climate was considered essential to the treatment of pulmonary tuberculosis. At present, the general opinion seems to be that one climate is as good as another; that climate is without therapeutic value. Now climate (which includes altitude, relative humidity, temperature, air currents, soil, drainage and many other elements) does exert physiological effects upon the human body in both health and disease. For instance, where I am located the climate acts disastrously upon all cases of organic heart trouble. Under the same treatment pulmonary tuberculosis will often prosper in one climate and succumb in another.

Because of these many reasons that I have hinted it would seem wise for our railroad companies to establish sanatoria for the treatment of employees suffering from early tuberculosis. This plan need not involve large expenditure. Sanatorium efficiency does not depend upon an elaborate plant. The building and equipment simply constitute an instrument to be used with more or less skill according to the ability of the medical man in charge. Enough individual bungalows, at a cost of \$100 apiece, or less, together with a modest administration building are all that is required. Each company has men on its medical roll who reside in suitable climates and who are specially trained for this work. To one of them could be delegated the care of all early cases. If a more ambitious program is desired several of the roads could combine to carry it out.

The most precarious time in the life of a consumptive is the year following his discharge from the sanatorium as an arrested or as a cured case. His finances have become straitened; his business demands extra nervous expenditure; he feels the freedom of a man whose death sentence has been reversed; he does not realize the true situation. Many of my worst cases have been discharged from some institution as cured. In a former talk, before the State Society, I advocated the rule that no patient should be included in the list of arrested or cured cases until after three years have elapsed from the date of discharge. If sanatoria would adopt this rule their statistics would be less attractive but more accurate. When one of you removes a cancerous breast you do not report the patient cured when she leaves the hospital. You await developments. It should be so with consumptives. For at least one year after leaving the sanatorium the patient should remain under close observation.

He should be carefully examined every two or three months and his mode of living strictly regulated. It should be much easier to follow up railroad employees in this manner than to keep track of private patients.

In conclusion I wish to refer to a point that should appeal to a surgical audience. It is not unusual to refuse or to postpone some needed surgical procedure because the patient is suffering from incipient tuberculosis. And yet, when surgery is indicated, tubercular patients bear the operation well, suffer little from shock and, for some reason, the tuberculosis frequently improves. Instead of being a counter-indication to surgical work incipient tuberculosis is a very cogent reason for doing it. Time and again I have removed nasal obstructions, tonsils and adenoids with decided benefit to the pulmonary condition. Nor are the benefits of operative work restricted to that done on the respiratory passages. In my sanatorium to-day is a young woman whose lungs were softening; she was rapidly declining. For a long time she had grumbling appendicitis. My consultants opposed operation because of her pulmonary tuberculosis. However, I opened her and removed the diseased appendix. She has gained about twenty pounds in three months and her lungs are clearing up. A year ago I opened a blacksmith who was in bad shape. The appendix contained many tuberculous nodules and the peritoneum was studded with tubercle. The man is now well. These cases are merely illustrative. And yet, I have seen so many pulmonary cases recover after work on pus-tubes, or gall-bladder or appendix that I have become quite optimistic. I do not pretend to specialize in surgery but experience has taught me that moderate tubercular involvement of the lungs is no bar to otherwise indicated surgical work. These statements may be simply "carrying coals to Newcastle" but so often such work has been opposed by my consultants that it seemed worth while to refer to the subject. It may be assumed that the benefit to the lungs is derived from the improved nutrition and the lessened insult to the nervous system incident to the removal of the surgical disease.

Discussion.

Dr. Wm. Ellery Briggs, Sacramento: In regard to surgical operations in tuberculous troubles, I was rather interested to know in what kind of cases the author would advise the removal of tonsils and do large operations for nasal stenosis. It has been my practice to discourage removal of tonsils where there was extensive pulmonary disease and where it seemed as though the tonsils could not be the source of continued reinfection. I still believe that the depressing effect of considerable surgical operations (removal of the tonsils if not sources of reinfection) are distinctly contraindicated, and I advise against it when there is extensive pulmonary disease. I would like to know Dr. King's views on this subject. Of course there are many nasal conditions where surgical operation would improve the breathing, which would be a reason for the operation.

Dr. King: In regard to operative measures, no one wants to operate on a moribund case. If the patient is too far advanced operation is never advised. There are three reasons for not operating:

1, poor resisting power; 2, fear of shock; 3, fear of infection. I do not think the resistance is affected by the presence of tuberculosis and shock is not to be feared as much as in other cases. Surgeons will take the view that shock is more likely to occur in those who are robust than in those who are already weakened by disease. Chances of infection are not increased by the disease. To discuss tuberculin would take too much time. I use it in about one-third of my cases. There have been some very valuable results; but as a rule I think it disappointing, and there are great possibilities of harm being done by it. There is always the possibility of harm resulting, and a slight probability of great good in some cases.

SOCIETY REPORTS

ALAMEDA COUNTY.

The annual meeting of the Alameda County Medical Association was called to order by the president, W. A. Clark, at the Y. M. C. A. building, Tuesday evening, Dec. 17, 1912, at 8:30 o'clock.

The following program was given:

1. The Value of the Color-fields in the Diagnosis of Syphilis. Dr. H. G. Thomas.
2. Syphilis as an Important Factor in the Etiology of the Functional Neuroses. Dr. J. D. Ball.

These papers brought out interesting discussions.

Reports from the president, treasurer, secretary and Dr. David Hadden, chairman of the Medico-Legal Committee, were read. The reports showed the society to be in a satisfactory condition. The outgoing officers asked and the incoming ones promised for themselves and the society good and earnest work for the coming year.

The election of officers, councilors, delegates and alternates resulted as follows: President, Dr. M. L. Emerson; vice-president, Dr. Dudley Smith; secretary-treasurer, Dr. Elmer E. Brinckerhoff, councilors, Drs. N. H. Chamberlain, J. A. Ellis, W. H. Irwin, C. W. Page, Alvin Powell, G. G. Reinle; delegates, Drs. Elmer E. Brinckerhoff, T. J. Clark, W. A. Clark, David Hadden, and alternates, Drs. L. P. Adams, C. G. Bull, C. E. Curdts, A. Galbraith, A. F. Gillihan, J. L. Lohse, J. L. Milton and R. T. Sutherland.

ELMER E. BRINCKERHOFF, Secretary.

BUTTE COUNTY.

The Butte County Medical Society held its monthly meeting at the offices of Dr. Gatchell at 8 p. m. January 14th, the president, Dr. C. L. Browning in the chair. Members present: C. L. Browning, N. T. Enloe, D. H. Moulton, W. L. and E. F. Gatchell and J. L. Gougout.

Dr. Gougout read a paper on Bright's Disease.

The following officers were elected for 1913: President, P. L. Hamilton; vice-president, T. B. Reardon, of Oroville; secretary and treasurer, Ella F. Gatchell; board of censors, W. L. Gatchell; delegate to State Society, D. H. Moulton; alternate, C. L. Browning.

ELLA F. GATCHELL, Secretary.

SAN JOAQUIN COUNTY.

The San Joaquin County Medical Society held its annual meeting in the offices of Dr. D. F. Ray December 27th, and elected officers, directors and committeemen for the ensuing year, as follows:

President, Dr. W. J. Young; first vice-president, Dr. W. E. Gibbons; second vice-president, Dr. A. W. Hoisholt; secretary, Dr. R. T. McGurk; dele-

gates to the State Medical Society, Dr. Barton J. Powell, Dr. A. W. Hoisholt and Dr. J. D. Dameron.

The committees were as follows: Ethics—Dr. H. E. Sanderson, Dr. Hudson Smythe, Dr. Mary Taylor, Dr. R. T. McGurk and Dr. Barton J. Powell; admission—Dr. Minerva Goodman, Dr. Margaret Smyth, Dr. Hudson Smythe, Dr. A. W. Hoisholt and Dr. E. A. Arthur; finance—Dr. J. D. Young, Dr. L. R. Johnson and Dr. F. P. Clark; program—Dr. Margaret Smyth, Dr. Minerva Goodman and Dr. C. F. English. The directors are: Dr. C. R. Harry, Dr. W. J. Young, Dr. S. E. Latta, Dr. W. E. Gibbons, Dr. A. W. Hoisholt, Dr. F. P. Clark, Dr. R. T. McGurk, Dr. Barton J. Powell and Dr. Hudson Smythe.

The society decided that on account of the short notice given the local organization to raise funds for a convention of the State Medical Society here, it could not accept the offer for sessions in Stockton.

ANNUAL MEETING OF THE LOS ANGELES COUNTY MEDICAL ASSOCIATION.

The annual meeting of the Los Angeles County Medical Association was held on Thursday evening, December 19th.

The officers and committees for the coming year are as follows:

Officers.

Wm. M. Lewis, M. D., Auditorium Bldg., President; A. S. Lobingier, M. D., Story Bldg., Vice-President; George H. Kress, M. D., 245 Bradbury Bldg., Secretary-Treasurer and Editor of the Bulletin.

Board of Councilors.

Wm. M. Lewis, M. D., Chairman (ex-officio); George H. Kress, M. D., Secretary (ex-officio); Stanley P. Black, M. D. (1915); Dudley Fulton, M. D. (1915); A. S. Lobingier, M. D. (ex-officio); H. Bert. Ellis, M. D. (1913); Albert Soiland, M. D. (1913); W. W. Richardson, M. D. (1913); George L. Cole, M. D. (1914); F. C. E. Mattison, M. D. (1914); W. Jarvis Barlow, M. D. (1914); O. O. Witherbee, M. D. (1915); F. W. Thomas, M. D. (Pomona Branch); A. C. Sellery, M. D. (Long Beach Branch); W. H. Parker, M. D. (Santa Monica Branch); W. H. Dudley, M. D. (Eye and Ear Branch); W. D. Dilworth, M. D. (Pasadena Branch).

Branches.

Pasadena—W. D. Dilworth, M. D., Chairman; Eliot Alden, M. D., Secretary.

Pomona—L. M. Breed, M. D., Chairman; N. J. Rice, M. D., Secretary.

Long Beach—W. H. Newman, M. D., Chairman; Thomas L. Rogers, M. D., Secretary.

Santa Monica—John A. Balsley, M. D., Chairman; G. A. Fielding, M. D., Secretary.

Eye, Ear, Nose and Throat—H. A. Kiefer, M. D., Chairman; J. M. Brown, M. D., Secretary.

Committees.

Membership—Dr. John C. Ferbert, Chm. (1912); W. R. Molony (1914); Dr. L. M. Powers (1915).

Medico-Legal (Ethics)—Dr. W. T. McArthur, Chm. (1914); Dr. Wm. Duffield (1912); Dr. W. W. Richardson (1913).

Certified Milk—Dr. Fitch C. E. Mattison, Chm.; Dr. George H. Kress, Dr. L. M. Powers, Dr. Stanley P. Black, Dr. Titian J. Coffey, Dr. H. B. Stehman, Dr. Jas. H. McBride, Dr. Wm. L. Zuill, Dr. Samuel L. Salisbury, Dr. Elmer A. Clarke, Mrs. Charles F. Edson, Mrs. W. W. Orcutt, Mrs. Wil-

bur E. Sanders, Dr. George H. Hart, Dr. P. V. K. Johnson.

Public Health Committee—Dr. Stanley P. Black, Chairman; Dr. L. M. Powers, Dr. F. C. E. Mattison, Dr. C. C. Browning, Dr. P. C. H. Pahl.

Board of Permanent Quarters—Dr. H. Bert. Ellis, Chm. (1914), President of the Association (ex-officio); Dr. F. C. E. Mattison (1913); Dr. Walter Lindley (1915); Secretary of the Association (ex-officio).

Malpractice Defense—Dr. C. B. Nichols, Chm.; Dr. J. H. Seymour, Dr. H. G. Marxmiller.

Committee on Contract Practice and Hospitals—Dr. F. C. E. Mattison, Chm.; Dr. Stanley P. Black, Dr. Andrew Stewart Lobingier, Dr. L. M. Powers.

Committee on Necrology—Dr. Frank D. Bullard, Chairman; Dr. John Dunsmoor, Dr. George Malsbary.

Committee on Hospitals and Contract Practice—Dr. O. O. Witherbee, Chairman; Dr. A. S. Lobingier, Dr. Dudley Fulton.

Scientific Program—The Secretary of the Society (ex-officio).

It was proposed to change the Constitution to make the dues fifteen dollars yearly, instead of twelve dollars. The article on Funds and dues would then read as follows:

CONSTITUTION AND BY-LAWS.

ARTICLE IX.

Funds and Dues.

"Section 1. Funds shall be raised by a per capita tax of Fifteen Dollars (\$15.00) per annum for members, the entire sum to be payable either in advance, or in two installments of Seven and a Half Dollars (\$7.50) each, the first installment to be due on January 1st, and the second installment to be due on July 1st of any year; provided, that new members (excluding under this term former members who have allowed their membership to lapse) who apply for admission into the Association in July or thereafter of any year, shall pay only the semi-annual assessment of Seven and a Half Dollars (\$7.50) for that year.

"Section 2. Funds may also be raised by voluntary contributions, from the publications of the Association's transactions, and in any other manner approved by the Board of Councilors.

"Section 3. Any member whose semi-annual payments of dues shall remain unpaid two months after the date such semi-annual payments are due; namely, unpaid after March 1st or August 1st, shall be held as suspended without further action of the Association, but any member so suspended shall be reinstated in full membership if the entire amount due is paid prior to October 1st of any year. If a semi-annual payment previously due, remains unpaid on June 1st or on November 1st, he shall cease to be a member of the Association, but a member thus dropped may be re-instated by paying in addition to all arrears the sum of One Dollar (\$1.00), provided such re-instatement is made before December 1st of the same year.

"Section 4. In one of the December Bulletins of each year, shall be printed a list of the members who have been dropped for non-payment of dues, under the heading, 'List of Those Who Have Been Dropped for Non-Payment of Dues for Current Year.'

"Section 5. Any member who has been dropped for non-payment of dues as per Section 4 of this article, in order to again become a member must pay all back dues plus penalties, and send in an application as if he had never been a member. This provision is also to apply to members who resign for other reasons than absence from the city.

"Section 6. Any member of any other county medical unit in California who wishes to transfer to the Los Angeles County Medical Association must state the amount of dues paid for the current year to the Society of which he is a member, and must then send a check for any difference due to the Los Angeles County Medical Association, before his application can be voted upon."

The following argument was made in defense of this proposed increase in dues:

In a straw vote taken during the discussion of the report of Mr. Morrow, on the prosecution of illegal physicians, it was shown that the Society members present felt that this work should be kept up. Mr. Morrow stated that \$2500.00 annually would be necessary if what had been accomplished to date was not to be lost.

It was felt after discussion, that every member of the Society could well pay 25 cents a month, or three dollars a year to keep up this work.

For the information of those who might be tempted to form a hasty judgment that such an increase in dues was excessive or detrimental the following facts were presented:—

Some years ago, with very limited membership and low dues of five dollars a year (but no malpractice defense) so many members became financially delinquent that it was necessary to almost constantly have a collector at 25 per cent. commission, on the work of trying to collect these dues.

In recent years with malpractice defense, collection bureau outfits, copies of Nostrums and Quackery, refreshments at meetings, etc., the dues have been collected without one penny being spent for commissions.

In other words, as the members of the Association received increasing material benefits from the Society, they have been glad to pay increasing dues.

Let us enumerate some of these material benefits, to note whether or not every member is not actually receiving a great deal more than he pays for in cash, in the way of dues.

The malpractice feature of the State Society alone is itself worth the cost of a malpractice defense policy in a private company, i.e., is worth the fifteen dollars which such a private company would charge for such a policy.

This being the case every other item given by County Society Membership is virtually a gratis advantage.

A statement of values would be somewhat as follows:

A. Money Value Advantages.

1. State Society Malpractice Defense, money value	\$15.00
(This State Malpractice defense is as good or better than that purchased from private companies for the above sum.)	
2. State Medical Journal, money value.....	1.00
3. State Medical Directory, money value..	1.00
4. Collection Bureau Outfits, money value in stores	2.00
5. Copies of New and Non-Official Remedies, Bulletins, etc.....	1.00
Total of money values.....	\$20.00

B. Professional Value Advantages.

6. Membership in the County Medical Society of Ethical Practitioners, with privilege of participation in scientific and social meetings. (Value what you yourself would think such permission worth, if it were not possible for you to join.)

7. Membership in the State Medical Society.

(Here also the value depends upon how the individual looks upon such membership.)

8. Eligibility to Membership in the American Medical Association. (No physician is admitted to the A. M. A. unless he be first esteemed worthy of membership in the county unit by his local colleagues. What is this privilege and membership, with the copy of the Journal of the A. M. A., worth to you?)

In addition to the above it is the purpose when the medical building at Sixth and Olive Streets is completed, to maintain a library, museum and recreation rooms for members of the Association. Will this be worth anything to you?

At the same time you will have the right, by virtue of being a member in the County Society of taking offices in this building (the only "Class A" building in the city where Science healers and practitioners of what not, will be prohibited from having offices). Will this be worth anything to you?

Surely, with such an array of money value and of professional value benefits, and with the great need of keeping up the work of prosecution of illegal and vicious practitioners, this extra twenty-five cents a month will work no serious hardship on any member.

An earnest plea is made therefore by the Board of Councilors and by many members, that the increase of dues by the sum of three dollars or fifteen dollars in all, be ratified.

REPORT OF THE SECRETARY-TREASURER FOR THE FISCAL YEAR ENDING DECEMBER 19, 1912.

To the Members of the Los Angeles County Medical Association:

Your Secretary-Treasurer begs leave to submit the following report for the forty-second year of the Association, ending December 19, 1912.

Part I. Financial Report. (Report of the Treasurer).

The Financial Report of the Association is as follows:

A. Maintenance, Income and Expenses.

1. The balance from last year was....	\$ 181.29
2. The total income from 598 active and 2 honorary members, some of whom paid only for one half year, was.....	\$6990.00
3. In addition there was miscellaneous income, to total.....	45.17
4. These three items together making a total of	\$7216.46
5. The first expense of this year was paid by check No. 1 and the last by check No. 172, and the total checked out was	6059.85
6. Leaving a balance in the Treasury at the date of this annual meeting of..	1156.61
7. Subtracting the sum of \$1000.00 to be transferred to the Permanent Quarters Fund	1000.00
8. Leaves a cash balance on hand on January 1st, 1913, of.....	\$ 156.61

The expenses sub-divided into their major groups are as follows:

Itemized Maintenance Income and Expenses. Income.

1. Received from dues in 1912 (567 members at \$12 and 31 members at \$6)...	\$6990.00
2. Received from miscellaneous.....	45.17
3. Carried over, balance from 1911.....	181.29
4. Grand total of all income in 1912.....	7216.46

Expenses.

1. Paid assessments to State Society (Four Dollars for each member).....	\$2400.00
2 Paid for rent of hall.....	180.00
3 Paid for refreshments at meetings.....	549.00
4 Paid for clerical expenses.....	617.44
5 Paid for printing and postage.....	1096.94
6 Paid for special expenses.....	1143.75
Subdivided.	
Tellers	\$ 20.00
Prosecuting Illegal Practitioners....	360.00
Owens Bill Bulletins (Printing and Postage)	453.90
Copies New and Non-Official Rem- edies	117.20
H. T. Morrow, State Meeting attend- ance	23.50
Pomona Branch	23.00
Pasadena Branch	54.00
Public Health Moving Picture Films	92.15
	<hr/> \$1143.75
7 Paid for miscellaneous expenses (black- board, stereopticon, etc.).....	\$ 72.72
8. Grand total of all expenses in 1912..	6059.85

B. Building Fund Assets.

A total of \$9,677.71 has been credited to the Permanent Quarters Fund. (See Report of that Committee for detailed information.)

Respectfully submitted,
GEORGE H. KRESS, Treasurer.

Part II. General Report. (Report of Secretary.)

The year just closed has been characterized by steady, forward progress, the most notable fact being the continued increase in membership, and the inauguration of the medical office building proposition.

Membership. The total number of members for whom we paid assessments to our State Society was six hundred.

It will not be out of place to again give here, as a matter of record, the total membership of our Association during the last several years.

In year 1905 total membership was 315 members.

In year 1906 total membership was 359 members, gain, 44 members.

In year 1907 total membership was 393 members, gain, 34 members.

In year 1908 total membership was 398 members, gain, 5 members.

In year 1909 total membership was 402 members, gain, 4 members.

In year 1910 total membership was 457 members, gain, 53 members.

In year 1911 total membership was 561 members, gain, 104 members.

In year 1912 total membership is 600 members, gain, 39 members.

It is evident from the above figures that the Association is continuing its steady progress as regards increase of its membership.

Largest County Society in California. The year 1912 easily makes our organization the largest county society in California, for under date of December 9th, the State Secretary informed us that the total membership of the San Francisco County Society was 554, whereas our records show that we have paid assessments to the State Association for exactly six hundred members, showing that the Los Angeles County Association exceeds the San Francisco County Society in paid up State membership by 46 members.

Campaign for New Members in 1913. This is perhaps the proper place to speak of the matter of new members for our Association. Our Society is

in hearty accord with State President Hamlin's recent letter, printed in the December 6th Bulletin and in the December 1912 State Journal, calling attention to the importance of making membership in every county medical society stand as a real indication of professional qualification and ethical dealing. The Los Angeles County Medical Association desires applications only from such qualified and ethical practitioners, and if there be within its membership any to whom are repugnant the ethical and professional principles which our Society supports, then any and all such are respectfully solicited by the Board of Councilors to discontinue their membership in the Los Angeles County Medical Association.

Our Association is strong enough to desire only loyal members who are willing and glad to live up to the true ideals of the profession and of the National, State and County Units.

We should not interpret, however, our steady increase in membership as a reason for not continuing to have those who are properly qualified, join with us in support of the principles for which we stand. We should not, in fact, rest satisfied until every eligible physician and surgeon within Los Angeles County has been given an opportunity to express his desire to become a member of the Los Angeles County Medical Association. We lay special effort on this point, because the proper time to seek new members is at the beginning of the fiscal year, January 1st.

Therefore, when you receive one of the application blanks in January, take down your 1912 State Medical Directory which you received a few days ago and run over the list of physicians in Los Angeles County whose names are printed in light type, to see whether you do not know one or more who are eligible to membership. Then give or mail your application to such physician. If you need more blanks, notify the Secretary and he will be glad to send you same.

If every member would do this several times a year, it would only be a comparatively short time until most of the eligible practitioners of the community would be members of our County Unit. In union there is strength. Every additional good member whom we add to our Association makes us just that much stronger. Let us not forget this fact.

Each member has another responsibility in regard to new members and that is to scan the list of applicants as they appear in the Bulletin and to notify the Membership Committee or officers when by any chance the name of an undesirable applicant appears. It is a very simple matter for the Board of Councilors to act properly, if it has at hand the information to justify adverse action. No publicity or embarrassment need be attached to your protest.

Members Dropped for Non-Payment of Dues. During the year just closed a total of 17 members were dropped for non-payment of dues. (Thirteen for no dues and four for partial dues.) This is not any more surprising than that a limited number of physicians in every community steadfastly refuse to affiliate with their County Units. We take it that a portion of these members who were dropped for non-payment of dues owe their delinquency to a certain kind of carelessness and procrastination. We are sorry in a sense, to lose them, but if they can not feel that the State malpractice defense, the State Journal and State Medical Directory, the membership in State and County Societies, and other advantages given them are not worth the small price of our dues, then it is just as well perhaps that they should have let their membership lapse.

Scientific Meetings. During the year meetings have been regularly held by the Los Angeles city branch on the first and third Fridays and more recently on the first and third Thursdays of each month (except during the summer months). The

attendance has been uniformly good and the informal luncheons have added much to the pleasure of the meetings. Even though these luncheons mean considerable expense, we are certain they are one of the best features recently inaugurated, for through them an opportunity is given for the formation of those new acquaintances and friendships that make so greatly for real solidarity and strength in our County Unit. Only through the cultivation of this spirit, in a large and growing Society such as ours, is it possible to have thorough good feeling and generous loyalty to the best interest of the organization.

Branches. Our Eye, Ear, Nose and Throat Branch and the Pasadena, Pomona, Santa Monica Bay and Long Beach branches all report progress. It would seem that the members about San Pedro Bay, and also in the foothill region about Monrovia, might get together and discuss whether or not it might not help the professional good spirit of their respective regions, were branches to be formed in their districts.

Personally we also believe that the Clinical and Pathological Society of our city might well become a Pathological Branch of our Society, somewhat under the same conditions as our Eye, Ear, Nose and Throat Branch. Certainly from the standpoint of broadest interest to organized medicine such an affiliation is greatly to be desired. The best is none too good for the Los Angeles County Medical Association and if the Clinical and Pathological Society of Los Angeles has aught which the County Unit has not, then the members of the Clinical and Pathological Society owe it to the County Unit which represents them and defends them, to give to that Unit of their very best. There is no reason why the Clinical and Pathological Society need in any way lose its integrity or by-laws or methods by becoming such a branch. We trust the members of that Pathological Society will give this matter their attention during the coming year.

The Bulletin. During the last year the same general method was pursued with our Bulletin as in the previous two years. It has been the aim of your secretary to present in the Bulletin those matters and that information that would work for the upbuilding of our Society. In this as in other features inaugurated in the last several years, the best indication of success is the steady onward march of our Society in increased membership and greater solidarity in feeling and action, as contrasted to the steady stationary condition of our unit, before those measures were inaugurated. Moreover, we must remember that only a minority of our members turn out at meetings and the Bulletin is the means by which other members are kept in touch with our work.

Scientific Programs. We are a believer in the principle that the Society is getting in the way of scientific programs just what it deserves. Personally, the secretary thanks all who have aided him in the last year by presenting papers, and he would state to any who thinks that the programs could be improved upon, that an invitation has been extended time and again and is now again extended, to every member to write a paper or be responsible for a symposium for the entire evening. This being the case, it is with exceeding poor grace that any member or members should complain of our scientific programs. Let those who want better papers make examples by themselves writing better papers. Until they do this, they have no basis for complaint. Personally, we believe the papers presented to the Society have been excellent and we thank again all those who have aided the secretary by agreeing to participate in the scientific programs.

Collection Bureau Outfits. In the meeting of the State Society in April last we persuaded the State Board of Councilors to print our sticker collection

slips and offer the same to members of our Society. The State Journal contained full information in regard to this. In addition, our own Society will this week send out gratis to every member a set of 25 sheets, containing in all 175 individual follow-up stickers.

Roster of Membership. The 1912 roster of membership was printed in April last. An attempt will be made to print our 1913 roster in January next.

Owen's Bill Bulletin. In addition to the large number of Owen's Bill Bulletins sent out last Fall, many thousand were sent out last Spring also. We have the satisfaction of knowing that the thousands of copies of these 50-page bulletins which were mailed to the members of the medical, the legal and the ministerial professions of California and to the nurses' associations and women's clubs of Los Angeles, helped greatly in public health education, concerning the Owen's bill, the physical inspection of school children, etc. This pioneer public health work by our County Unit cannot fail to be of ultimate good result.

Copies of New and Non-Official Remedies. A copy of the A. M. A. booklet of New and Non-Official Remedies was purchased by the Association and sent gratis to every member of the society.

Copies of Code of Ethics. A copy of the revised code of ethics is now being sent to every County member who is not a member of the A. M. A. Members of the A. M. A. will receive their copies direct from that organization when they pay their 1913 membership fees.

Support of the Work of Prosecution of Illegal Practitioners. To help in the prosecution of the illegal practitioners practicing in Los Angeles County, the Board of Councilors voted sixty dollars monthly for six months, or three hundred and sixty dollars in all, for the use of the State Board Attorney, Mr. Hubert Morrow. Through Mr. Morrow's efforts, many of the illegal and vicious practitioners of the county were made to stop their business. This donation of \$360.00 was in fact one of the very best investments in the work of protection of the public health which our Society has made in years.

Public Health Moving Picture Films. In conjunction with the Los Angeles Society for the Study and Prevention of Tuberculosis our Association arranged for the exhibition of public health moving picture films in the public schools and moving picture theatres. Our share of the expense for this purpose amounted to \$92.15. It is to be regretted that the School Board should have subsequently thrown so many restrictions about this work that it was necessary to give it up.

Malpractice Defense by the State Society. The State Medical Association has been under very heavy expense defending the suits entered against our members in the Los Angeles County. In this day of ingratitude and specious reasoning of many citizens on public health matters, it is in the air to assail the members of the regular profession as much as possible. Malpractice suits have therefore become more numerous than ever before.

Let us be grateful that through the State Society we are able to present a united front to those ingrates and blackmailers who unjustly assail our members. Here as in few other material ways, we have another indication of how greatly our united effort is demanded to give battle to those who maliciously or fanatically would assail us.

Medical Building Proposition. The most important event in the past year was the development from a hope into beginning reality, of our "A Home for the Los Angeles County Medical Association" propaganda.

From the time your present Secretary assumed the duties of that office, the thought has been con-

stantly kept in mind that the thing that would really make his work worth while, would be a home for the Association. To that end the Bulletin was enlarged, refreshments were added to the meetings, collection slips instituted, campaigns for new members vigorously carried on and other measures inaugurated which had as their object a larger and more united membership in the Society, in the hope that from this larger and better union there might come into being a home for the Society. The finances of the A. M. A. meeting were handled by the entertainment committee with the same ultimate object in mind, namely, to give the visiting A. M. A. members the best entertainment they had ever received anywhere, but at the same time to have left over a goodly sum as a nest egg for a permanent building fund. Those plans did not go amiss, and after the A. M. A. meeting it was possible to turn over to the newly instituted Board of Permanent Quarters the sum of almost nine thousand dollars.

The question then arose as to what plan would benefit the Association most: To invest this newly acquired money as money at a five per cent. interest rate or to try to bring into existence at least a beginning home of the County Medical Association in the hope that it would pave the way for something better. One of our members having volunteered to pay part of the expenses of the erection of an addition to the Barlow Medical Library, a post card vote was taken on that plan, with a majority in favor thereof. Before anything definite was done, however, Dr. J. Rollin French appeared before the Board of Permanent Quarters and stated his willingness to undertake a preliminary canvass on the practicability of our County Medical Association taking upon itself the erection of an office building for the exclusive use of the members of the Association.

The Board of Permanent Quarters appointed a committee of which Dr. French was chairman, to undertake this canvass, and the hearty response and approval of the plan showed that we had at last arrived at that state of solidarity where so important a project might be seriously contemplated. As is often the case in matters of this kind, it was necessary to move rapidly if we were to secure the one site which all were agreed upon as being the best location, namely, the large lot at the southeast corner of Sixth and Olive streets. The Board of Permanent Quarters, by authority from the Board of Councilors, thereupon took an option on this property in the name of the Los Angeles County Medical Association.

As the purchase of this lot and the erection thereon of an eleven-story Class A office building meant an expenditure of almost one and a half million of dollars, it at once became evident that so large a proposition would of necessity have to be handled by a separate corporation and to that end the Medical Building Corporation was formed.

That corporation through a board of fifteen directors at once took up the work of organization, so that the option put up by our County Society might not be lost; and in order to place the enterprise on the safest possible basis engaged Mr. L. B. Spencer, an experienced architect, builder and banker to become the vice-president and manager of the corporation. Mr. Spencer has been giving his entire energy to making this enterprise a big success and there is no good reason why it should not become such.

As has been stated in the Bulletin, resolutions were presented by the Secretary and passed by the Board of Councilors, which obligate the Medical Building Corporation as part of its purchase price of the option originally taken and held by the Los Angeles County Medical Association, to give to that Association, desirable auditorium, office, library, museum and recreation room facilities at the nominal cost of one hundred dollars a year

rental. So that to that extent at least a splendid home is assured for our Association and its members.

The whole matter has gone too far forward, ever to permit us to go back. The building can and will be built, and along the lines outlined in the past. There can be no doubt as to its being a financial success for those who invest therein and at the same time a credit and benefit to both the Los Angeles County Medical Association and the community at large.

The only point in doubt is the extent to which the Los Angeles County Medical Association will ultimately become an actual owner of a large part of the building. If we had the whole-hearted financial and other co-operation which this enterprise deserves, it would be possible in the course of twenty-five years or so, to make the Los Angeles County Medical Association one of the richest county units in the United States. Of course, to secure such beneficial results for the future would mean that we of to-day would have to be generous enough to be willing to go to the front. And yet, many, if not the majority of our members expect to be in practice a quarter of a century hence. What we do, therefore, we do largely for ourselves after all.

When lending co-operation in this enterprise means nothing more than the safe investment of some money in the securities of a very high-class building proposition, surely under such conditions, what is demanded in the way of co-operation would not seem to be excessive.

It is the hope of many in our Association to see our County Unit become one of the strongest in America. Surely in no other community does the opposition to regular medicine seem to be so closely united in its efforts to misrepresent it and what its members stand for.

If we do not unite what will be the result at the end of a few years? What chance would we have as individuals against the rampant agitators and faddists and fanatics who have been trying to undo, and not altogether unsuccessfully, so much of our past work in the protection of the public health?

What better means can we bring into existence for continued growth and solidarity of our county unit than this medical building? Your Secretary, who has not hesitated to stand sponsor for many of the innovations during the last few years, which seem to have been so important in increasing the size and strength of our Society, tells you frankly that in his opinion, the next logical step forward is and must be a suitable home for our Society. And nothing could be better in this direction than the Splendid Class A office building which is contemplated.

Without such a home, our Society has nothing more ahead of it, other than that which was ahead of it in the past. In other words, without a home for our Association, we would have a loosely organized Society, with transient and varying spurts of activity or inactivity according as we elected from time to time, working and non-working groups of officers.

When we look about us in this city and note what has been accomplished by women's clubs and similar organizations, with far less reason for real union than our profession needs, we surely have little to be proud of as regards our own past efforts in similar directions.

Your Secretary believes with those members who hold that this building marks the eve of a better condition of affairs for all of us and that through it, we will at last, be able to come into our own. Moreover, that they who are not with the Society in this proposition must be classed among those who are against it, and against the best interests of our Association.

This is no time to quibble over theories or ideals.

We have done that for forty years and the sum total in material resources was represented by a grand saving of eight hundred dollars, or a net saving of twenty dollars a year, and the Society no stronger at the end of that time than in the beginning.

In one year more we added almost nine thousand dollars and if all of the members of this Society come forward in anything like the fashion many of them are able to, it will be possible to state within a few years that the Los Angeles County Medical Association is a wealthy county unit, active not only in the protection of the public health, but in the highest and best interests of every member of the profession and Society. But that splendid result can come about only through the generous and at the same time profitable co-operation of all its members, by taking bonds in this medical building.

It may be said that there should not be many Los Angeles city members of our Association who have not taken at least one one hundred dollar bond in this building. The terms of payment are easy and virtually within the means of all or nearly all of our members. If our Building Corporation were able to announce that every Los Angeles city member had taken at least one bond (which carries one share of stock gratis), it would make the subsequent steps in the financing of the building just that much easier and quicker. Both the moral and physical support of every member is needed and the Society has a just claim for such support in this matter.

With whole-hearted co-operation it will be possible to accomplish no end of good for our Association, but if only luke warm support is given, we will have little more than the empty thought of what might have been, to console us.

We repeat, unless unforeseen obstacles intervene, this building will be built; but whether or not it will in time become in large part the direct property of the Los Angeles County Medical Association will depend greatly on the attitude our members take in this enterprise to-day. And to-day means to-day and not five years from now.

The officers of the Association and of the Medical Corporation make an earnest plea for the co-operation of every member of the Society in this proposition and we would be false to what we have been working for in the last several years and to what we hope our Association will be able to accomplish through this enterprise, did we not emphasize in most outspoken manner our belief in the full necessity of such co-operation.

If groups of boys in college fraternities can build expensive chapter houses, and clubs of women can become owners of splendid club house property, then surely, an organization of six hundred physicians, with a history of forty years of honorable service should also be able to do as much or more.

In conclusion, we wish to thank all who in the past year have given aid in the preparation of the programs or in the work of the Society; and if there be any who feel that the Secretary was not as sweet tempered at all times as he might have been, we ask that his failure in this be put down as one of those weaknesses which beset these human minds and bodies of most if not all of us.

Respectfully submitted,

GEORGE H. KRESS, Secretary-Treasurer,
1912.

REPORT OF BOARD ON PERMANENT QUARTERS.

Mr. President and Members of the Los Angeles County Medical Association:

The first annual report of this Board was printed in the Bulletin of January 5, 1912, and showed a balance on hand of \$9,677.61.

Of the above amount \$819.72 represented the savings of our Society up to the time of the

Los Angeles meeting of the A. M. A. in 1911, and the balance of \$8,857.89 was what was left of the entertainment fund when all the debts of the A. M. A. meeting had been paid.

During this last year, as you all know, the matter of an office building for the members of our Association took on definite form.

To secure for our Association a home of its own was the reason your A. M. A. Committee did not spend all the money it collected for entertainment. That was why we spent so much effort in inducing the Chamber of Commerce to stand the expense of the Catalina trip, and Mr. Busch to bear the burden of entertaining the A. M. A. in his sunken gardens. Had we not been able to secure this generous co-operation by friends outside our own profession, then every dollar we raised would have been more than eaten up by the entertainment we were in honor bound to provide.

It was in the hope, therefore, that there would be balance remaining, that the A. M. A. Committee provided in the subscription blanks, that any balance in the A. M. A. fund should go into a separate fund known as the "Permanent Quarter Fund."

It is not necessary at this time to go into details concerning our medical building proposition. Suffice it to say, the opportunity for action, to secure a most desirable lot came before us and had to be decided yes or no, with promptness.

The Board of Permanent Quarters, after careful consideration and with the consent of the Board of Councilors, purchased in the name of the Los Angeles County Medical Association, an option on the splendidly located lot at the southeast corner of Sixth and Olive streets owned by Mr. H. W. Spiers.

Later on the County Society sold this option to the Medical Building Corporation under certain conditions as to provisions for auditorium, museum, club room facilities, etc., at a nominal rental of one hundred dollars a year.

For the money used from the Board of Permanent Quarters Fund, our County Medical Association will receive securities of the Medical Building Corporation.

The exact amount of the securities to be received, will be determined later and will depend somewhat on how the members of the Association come through in the purchase of stock and bonds of the Medical Building Corporation.

If the members of our County Medical Association will subscribe liberally, so that it will not be necessary to use up most of the stock for an underwriting syndicate of laymen, then it will be possible to give to the Los Angeles County Medical Association an amount of securities, which, while in no way jeopardizing the good investment features of other stockholders, would, at the same time, permit our County Medical Association to become known as one of the wealthiest and most prosperous county medical societies in the United States.

The Board of Permanent Quarters therefore makes an appeal to each and every member of the Association to lend a hand in what can be made and what we hope will be, the biggest and most successful enterprise our Society has ever undertaken.

Respectfully submitted,

H. BERT. ELLIS, Chairman,
Board of Permanent Quarters.

REPORT OF THE COMMITTEE ON MEMBERSHIP.

Los Angeles, Cal., December 17, 1912.
To the President and Members of the Los Angeles County Medical Society, Los Angeles, Cal.

Gentlemen:

We, as your Committee on Membership, respectfully submit the following report:

There were forty-five applications for membership

made during the last year, six of which were rejected.

In the past, some of the rejected applicants were recommended by prominent members of the Society. This is in consequence of members endorsing applicants that they have not carefully investigated, showing that they have been careless, or indifferent, to the interest of the Society.

Any members having objections to any applicant for membership are urged to make such objections known, in confidence, to the Committee on Membership, and the same will be treated as confidential.

Very respectfully,

L. M. POWERS.
J. C. FERBERT.
W. R. MOLONY.

REPORT OF THE CERTIFIED MILK COMMISSION.

The financial income to this Commission from the Arden Dairy was \$824.02 and the expense of inspection was \$361.20, leaving a balance on hand of \$482.82.

The Medical Milk Commission have had less difficulty in getting the bacteriological counts down this year. There have been very few times when the counts have gone beyond 10,000 per C. C. We feel that the improvement in that direction has been largely due to the proper sterilizing of bottles. There have been complaints at various times relative to dirty looking bottles or sediment in the bottles. An effort has always been made to look up the cause of this careless handling of the milk and the trouble corrected immediately.

It is questionable whether any better means of education of the laity concerning clean milk, could be used than to issue a booklet setting forth the conditions in and around unclean dairies and contrasting these conditions with those of a modern, well-equipped, sanitary dairy. The results of the recent effort of the Los Angeles Health Department to secure pure milk for Los Angeles shows that an educational campaign must be started to educate its citizens along this line.

There have been several dairies which have signified their intention of starting a certified milk dairy, but as yet none have come up to the requirements, and at the present time we have one dairy which has added to its herd and has materially increased its output during the past year.

Respectfully submitted,

FITCH C. E. MATTISON, Chairman.
December 19, 1912.

REPORT OF THE MEDICO-LEGAL (Ethics) COMMITTEE.

To the Board of Councilors of the Los Angeles County Medical Society.

Gentlemen:

The Medico-Legal Committee begs leave to report that the year 1912 has been a very satisfactory one. Nine or ten cases were reported to the committee, and many of these were trivial in nature. There were very few charges preferred against any of the members of the Society. There were no suspensions and only one censure.

Respectfully submitted,

W. T. McARTHUR,
Chairman Medico-Legal Committee.

REPORT OF PROSECUTION OF ILLEGAL PRACTITIONERS.

Los Angeles, Cal., December 19, 1912.

Mr Chairman, Ladies and Gentlemen of the Los Angeles County Medical Association:

Your program is extensive, and your Secretary

having asked me for a brief report, I shall detain you but a few moments.

One year ago I addressed you, and most of the things we then hoped to do have been accomplished. In two years' work in Southern California alone approximately two hundred unlicensed practitioners have been closed up and put out of business, eighty-two in the period from April 15, 1912, to August 3, 1912. Professional abortionists have in large numbers been driven from the city, convicted, placed under indictment or put entirely out of business. My definition of a professional abortionist is, one who performs criminal abortions to the exclusion of all other work. Such men here are now relics of the past, though, of course, abortions are still performed. The death rate from abortions has been greatly reduced, all of the most dangerous men closed up or punished, and I leave to your collective wisdom the future problem as it applies to the other class of abortionists.

We have in Los Angeles now a separate office, a medical inspector, an attorney (not myself), but are greatly handicapped for necessary funds. The little organization is keen and effective, willing, overworked, and underpaid. That organization has the assistance of all governmental agencies and is prepared to do most efficient work. The Public Welfare League saved the day for the work, enabling us to cover, in a measure, all of Southern California. The League advances about \$75.00 a month towards the Board's work. Some of you have not joined the Public Welfare League, and many who did join, especially those amongst you who are near-millionaires, have not paid your subscription.

I have talked to members of your profession at Del Monte once, Oakland once, Fresno once, Redlands once, Riverside twice, Los Angeles now three times and Pomona once. This at the request of physicians who evidently wanted to know something of what we were trying to do. By the large amount of information which has come in from physicians since the agitation it is apparent that wider interest is being taken in these questions. At the meeting in Oakland twenty-four men immediately guaranteed sufficient money to carry on two years' work. The work is being done there by and through the County Society, and they are paying their inspector nearly twice as much as your inspector is being paid here. The results in Alameda County have been as good, if not better, than the results attained here in our first few months' work, fourteen hundred dollars in fines, I understand, having already been collected, crooks indicted, and much of the medical scum of the earth run out of the town. As an illustration of the efficiency of the present local work, due entirely to organization, and not to any brilliancy on the part of our underpaid and sometimes unpaid employees, the "Mayo Brothers," licensed physicians, masquerading under that false name, opened up an office and advertised in San Diego. In just a few days our men had them closed up there, followed them to Santa Monica where they opened up as "La Fave," and moved them out of there in about the same length of time. When we started this work two years ago it would have been practically impossible to have done anything with such an outfit.

The promise I made you a year ago to donate without compensation this year to the supervision of the work has been fulfilled, and after I have finished helping you through your coming fight in the Legislature, I shall turn over to you the burden of seeing that the organization we have here shall be enabled to continue its effective work.

If I may plead with you, let me emphasize your duty to see that all our good work is not undone by your failure to grasp the problem and provide now for continual and uninterrupted work along these lines.

As I have handled many malpractice suits and similar matters in this district for your Society, as well as taking an interest in the above matters, I have necessarily arrived at some decided notions and have drawn some conclusions from my connection with your profession. I may be transgressing on your hospitality to volunteer my opinions, but briefly the more important conclusions are as follows:

1. Educate the public regarding the noble efforts being made by your profession to benefit mankind and regarding the wonderful strides you are making. Eliminate, if possible, the unjustified ridicule of physicians on the stage or in the newspapers or magazines.

2. Raise sufficient funds to, year after year, have a young lawyer and an inspector steadily employed and with sufficient assistants to keep unlicensed practitioners and crooks down to the lowest possible point.

3. Keep on, as you have in the past, raising the standard of education and efficiency in your profession. While the law requires but ordinary care and skill on the part of the physician or surgeon, the patient always expects and should have the benefit of extraordinary care and skill.

4. See that your state organization reflects accurately the views and desires of a controlling majority of your members.

5. Make some particular study of the cause for so many malpractice suits and the means to be taken to avoid them. They have considerable bearing on the question of confidence of the public in the medical profession.

A great many things remain to be done, and I wish it were possible for me to be with you to see that they are done. I have grave fears that you will not take sufficient interest to insure consistent, efficient and continued action in assisting the Medical Board in the premises. However, as has been said of me, I have done a lot of talking; and if I have not succeeded in sufficiently rousing the profession along these lines, the fault does not lie with me. The credit for the excellent work done throughout the whole state lies with Chas. L. Tisdale especially, and with the excellent Board of Medical Examiners of which he is Secretary.

I shall sever active connection with this branch of the work, which has necessarily been a heavy burden to me, with a feeling of great respect and admiration for your members, for your efficiency and professional skill, and with intimate appreciation of your difficulties.

Respectfully submitted,

H. T. MORROW,

Attorney for the Committee in charge of Prosecution of Illegal Practitioners.

Apropos of the proposed Los Angeles County Medical Society Building, on which it is hoped to begin construction this spring, the following photograph and comments from the Bulletin of the Society, may not be without interest:

THE LOS ANGELES COUNTY MEDICAL ASSOCIATION BUILDING.

The Future Home of the Los Angeles County Medical Association.

Fronts on Sixth Street and Olive Street and is lighted in the rear by the alley, running east from Olive.

Will have the following incomparable advantages:

1. A building limited to tenants who are ethical physicians and surgeons (not like your present office building, in which you probably have as

neighbors a goodly number of so-called practitioners of mongrel forms of the healing art).

2. A fireproof Class A building, of handsome appearance, splendidly located.

3. Superheated water for sterilization and distilled ice water in every room.

4. Outlets for gas, compressed air and direct and alternating electricity.

5. Light and ventilation without stint.

6. Splendid elevator service, and entrances from both Sixth and Olive streets.



Southeast Corner Sixth and Olive Streets.
Facing Central Park.

7. An emergency operating-room.
8. A library with all the latest medical journals.
9. Smoking, reading, game and rest rooms for your noon hour.
10. Auditorium of the County Society in the same building.
11. Museum for pathological and other specimens. Exhibition room for ethical proprietaries and for surgical equipment, etc.
12. High-grade prescription drug store, surgical supply houses, nurses' bureaus, etc. in the same building.

Is there anything more that can be asked for? If so, let us know and an attempt will be made to arrange for it.

Members of the profession who fail to take offices in this building will find that other members will suspect them of luke-warm loyalty to the County Society.

Members of the profession who fail to take offices in this building will find themselves in a small minority of those who hibernate in other buildings with off-color "healers" of all kinds and descriptions.

Every member of the L. A. County Medical Association should do two things:

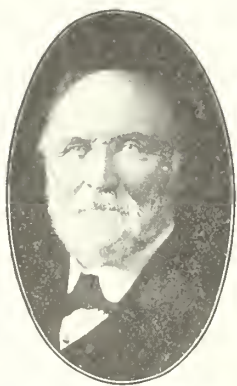
A. Should subscribe for at least one bond (Price \$100.00, payable in installments, with one share of stock gratis).

B. Should make a reservation for an office.

Failure to do these two things will detract just that much from the very big success the building would be, and from the benefit which would accrue to our County Society by whole-hearted and generous co-operation.

HENRY SAYRE ORME, M. D.

Dr. Henry Sayre Orme was born at Milledgeville, Ga., on March 25, 1837, and died at Los Angeles Nov. 29, 1912. Dr. Orme attended the Oglethorpe University, from which institution he received the degree of A. B. in 1858. He then became a student in the Medical Department of the University of Virginia, and later at the University of New York, from which latter school he received the degree of M. D. in 1861. He became an assistant surgeon and subsequently surgeon in the Confederate Army, where he served from 1861 to 1865. After the war he entered private practice at Atlanta, Ga., where he remained until 1867, in which year he came to Los Angeles and remained until the time of his death. He was a member of the Los Angeles County Medical Association and one of the oldest members of the Medical Society of the State of California. He had been President of the Los Angeles County Medical Association, of the California



State Board of Health, and of the Medical Society of the State of California.

For a number of years he was professor of hygiene in the Medical Department of the University of Southern California.

Dr. Orme in the earlier years of his practice in California was one of the foremost students of Public Health and Hygiene, on which subjects he wrote a considerable number of papers. In 1876 he married Mary C. VandeGraaff. He is survived by one son. Dr. Orme's kindly, courteous, warm-hearted nature was appreciated by every one with whom he came in contact, and the older members of the State Society will not soon get over the sense of loss when they fail to see him at the meetings of the Society.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

December, 1912.

The annual dinner, at which Dr. Kugeler, Chairman of the Entertainment Committee, presided, was held on December 3d at the Hof Brau Cafe. The Christmas tree, with gifts for all members present, helped enliven the proceedings.

ANNUAL MEETING.

December 10, 1912.

Presidential address by Dudley Tait:
Fellow Members:

I wish first of all to thank you for the honor, which I esteem so highly, of having been permitted to preside at your meetings and to address you to-night.

During the past year the policy of the San

Francisco County Medical Society, as outlined by your directors, your inspiring and indefatigable Secretary and serious minded committees, had but one single aim: the strengthening of the Society as a factor in the profession as well as from the view point of the public.

Hence closer relations with the laity through the Chamber of Commerce, the judiciary, the State and the municipal educational departments, the further development of section work and the use of hospital wards for clinical meetings.

The intrinsic value of membership in the San Francisco County Medical Society has been enhanced by the recent decision of your Committee on Admissions to abandon the old policy of numerical strength for that of quality. The unquestionable logic and the certain benefits to be derived from such a policy are clearly outlined in said committee's annual report.

The one illuminating event of the past year, which marks a new era in the medical history of San Francisco, we owe to your Building Committee, ably assisted by the Secretary of the State Society, Dr. Philip Mills Jones. I refer to the San Francisco County Medical Society Building which is almost an assured fact.

The tremendous possibilities of such a building—the best in the city and under the exclusive management of the County Medical Society—its elevating influence on the profession and more particularly on every tenant of said building, the resulting prestige to the Society, all this will be discussed at length in your committee's report.

Given these ideal conditions, your library becomes indispensable, and under the direction of your erudite librarian, Dr. Eloesser, its field of usefulness will be greatly enlarged; but, following the example of universities and hospitals in cities possessing a single central library (New York, for instance) we should continue to limit ourselves strictly to the support of a working library, to the files of which members may have ready and convenient access.

Your attention is especially called to the excellent condition of your finances.

It would seem like twaddle to discuss the lodge and contract question in an annual report. The problem in question is no longer one of ethics, but an economic problem of universal scope, and the advent of hordes of European immigrants through the Panama Canal will obviously modify any solution based on the semi-luxurious conditions now prevailing in the profession on this Coast.

The profession's one-sided discussion of the lodge and contract problem has demonstrated our inability to offer a solution; consequently, as in many other problems in which the public's interests outrank those of the medical profession, we must stand aside and allow the public to determine the remedy.

The value of the majority of medical society meetings is directly proportional to the character and extent of the discussion following the reading of papers. The papers appear subsequently in print, when they may be weighed with far greater accuracy than when presented viva voce. It seems manifestly unjust to call the members together for no other purpose than to listen to the reading of the proof-sheets of their State Journal, unless provision be made for an intelligent and varied discussion of the subject-matter. Your presiding officer, therefore, strongly commends the action of your Executive Committee in requiring that all papers be posted in the library one week prior to being read before the Society.

Those inclined to curtail and even exclude criticism from our meetings should be reminded that criticism is harmful only when it is destructive; constructive criticism, no matter how trenchant, is always helpful. Critical analysis! What more

potent, more just weapon have we against the ever present pretender through whose efforts advertising talent has become an accepted substitute for scientific evidence in some quarters, the pseudo-scientific type which thrives on pre-digested extract of foreign mail, the type that dominated and stifled the progress of medicine in San Francisco 20 years ago, that succession of more or less reputable old, voluble practitioners who, having attained to place and power by accidental circumstances rather than merit, could not, would not see the truth outside their lucrative chairs and spurious shrines.

To-day the medical profession of San Francisco compares very favorably with that of the great Eastern cities. Unlike the latter, San Francisco has not given all its talent to its universities; it retains numberless men particularly well trained in modern medicine, men whose publications have placed them in the foremost ranks of investigators, men who have driven home the fact that the field of the practitioner may develop into a most fruitful field of scientific research and that every observing practitioner is ipso facto an investigator.

Both in the directorate and in the committees, women physicians make not only intelligent but diligent and admirably loyal colleagues. Indeed, if the degree of esprit de corps commonly exhibited by medical women were universal among men, the influence of the medical profession would be immeasurably strengthened.

The history of the California Board of Medical Examiners during the past five years has been one of rapid disintegration. The Board's lowering of both ethical and educational standards, its cessation of adequate investigation of colleges and credentials, its failure to develop what California was the first to adopt—practical tests for licensure—its concessions to organized quackery (naturopaths), and its total lack of influence on medical education could but lead to disaster. Hence, the blacklisting of this State by high standard States. When, therefore, our Legislature adds a reciprocity amendment to our medical act, we shall enjoy the doubtful privilege of exchanging courtesies with the low standard States; we shall be compelled to accept the weak, the strong will be barred. In the face of such facts serious-minded people are already asking if the Board of Medical Examiners is of sufficient value to the State and profession to justify its existence. Medical legislation in California is in a state of chaos. The apathy of the profession, coupled with the inertia and unintelligence of medical officials, easily accounts for the thoughtless and vicious legislation which has crippled California's original model law, the law of our own choice, the law written in its entirety by the medical profession. And it is but natural that the unscrupulous and illiterate should have taken and shall continue to take advantage of our blunders, blunders which have wiped out decades of cumulative efforts and may eventually prove, as in quack-ridden Germany, a serious factor in the economic, moral and hygienic conditions of the country.

We of the medical profession have violated a public trust; to shift the blame to the people is neither fair nor honest.

In a recent letter addressed to the San Francisco County Medical Society, Governor Johnson writes: "I wish that I could count upon the medical profession for aid,—I mean disinterested, non-political, and non-partisan assistance by organized societies of the profession."

No permanent benefit has come of physicians' repeated attempts to assist the judiciary in the enforcement of that section of the penal code relating to abortion. The same may be said of the sporadic raids made by the postoffice inspectors.

Keep the angel makers from your Society and

let the public, through its legislators, prohibit or proclaim the "right to abort."

The broad and liberal policy of the medical departments of our two universities augurs well for the progress of medicine on this coast. Unlike private and ecclesiastic hospitals, they welcome the medical public to their wards, operating rooms and laboratories where workers and investigators will find a scientific atmosphere, a wealth of alluring material and sincere encouragement. Our university hospitals must, to be deserving of the name, do more than give patients skilful attention and careful nursing; they must deal with the problem of disease in its broadest aspects; they should constitute a clearing-house for our ideas, our doubts, our hopes. Were practitioners to avail themselves more consistently and systematically of these valuable privileges, much distant traveling might be avoided, fewer good men would shame their alma mater by dragging down ideals in bolstering up moribund institutions; our polyclinics, as now conducted, would no longer have any serious *raison d'être*, and neither the profession nor the public would mourn the ensuing loss of professorships in partibus.

That medicine is facing an ever increasing wave of discredit among the laity none of us can afford to ignore. The causes of said discredit are numerous, but none are more potent than our lack of knowledge and the untrustworthiness of a not inconsiderable fraction of the profession. The thinking public knows the unstable side of medicine, it is well aware of the tremendous role played by tradition, sentiment and fashion in medical and surgical therapy; it is not convinced that medical practice, in contradistinction to medical science, has kept pace with the general educational development of the masses; the public does not forget our ridiculous tergiversations in State and national legislative matters, our indecision and costly mistakes in municipal ordinances, our inability to agree upon and still less to enforce laws relating to the practice of medicine and public health. It cannot understand our failure to suppress that curse of American medicine,—the proprietary medical school; or our indifference toward the dichotomy* activities of certain operating higher ups; it cannot understand why the law governing contract and fraud should operate differently with the physician than in the case of other individuals, or the readiness of physicians to build a wall of immunity around confreres guilty of crass ignorance or inexcusable carelessness. The advanced thought of the intelligent portion of the community refuses to be fed on doctrines, it wants more than a veneer of truth, it yearns for facts, it expects more from the medical profession than mere treatment. Nevertheless, it has thought out the place of the physician in our social order and it realizes the enormous service medicine is capable of rendering. It, therefore, behooves the physician to regain the public confidence; and we ought to make haste and reform ourselves from within before the storm of public disapproval becomes uncontrollable.

Let us come down from our pedestals and get closer to the people, consult more often the public pulse rather than attempt to control it, remember that medical men exist for the benefit of the public and not the public for the advantage of our profession, and that our responsibilities to the public increase in proportion to our knowledge. Let us be more frank with ourselves and make ethics synonymous with plain honesty and common sense. Let us restrain those who are lowering the practice of medicine to the level of the trades; let us recognize and encourage the superior training of the younger generation of physicians, cease belittling the role of the M. D. in the public

* Fee splitting.

eye, and refuse to employ as anesthetists, assistant school inspectors, etc., trained nurses who are neither legally nor otherwise qualified to act in such capacity.

In analyzing the public's mistrust of the M. D., let us not forget the infinitesimal percentage of our confrères we dare consult when sickness enters our own household. Let us acknowledge the crude and imperfect character of our present methods of limiting the incidence of disease, of protecting the individual or perfecting the race. Let us get closer to the fundamental sciences upon which modern medicine is based, cultivate the negation of all doctrines—the experimental method—and by dint of patient and ceaseless effort, perfect our conspicuously rudimentary and defective powers of observation. Bearing in mind le grand peut-être of Rabelais, let us curb our attitude of obstinate unreceptive skepticism, especially in regard to the role of emotion on the condition of physical health.

Above all, let us endeavor to develop a spirit of loyalty to each other, a hearty and unselfish co-operation and combination within our ranks, and working shoulder to shoulder build firm the foundation of a great professional fraternity with unquestioned ethical and ever higher educational standards. By so doing we may see, as in certain European countries, an enlightened public turn to their physicians as guides, philosophers and friends, both in health and disease.

Happy the one who can say to himself when the curfew of life glitters upon the evening air,—“I have done what I could” for the cause of the profession and the welfare of humanity!

Report of Secretary-Treasurer.

Mr. President and Members of the Society:

As Secretary I beg leave to submit the following report for the year 1912, that is from December 10th, 1911 to December 10th, 1912, inclusive:

Number of members in Society Dec. 10, 1911...	548
New members admitted.....	36
Resigned	4
Transferred to other county societies.....	2
Died	5
Expelled	1
Dropped for non-payment of dues.....	10
On leave of absence.....	6
Number of members in Society Dec. 10, 1912...	556

(This does not include four to be admitted this evening on recommendation of Admissions Committee.)

It will be noted that we have eight more members in good standing at this time than last year. The question of the collection of dues is still a perplexing one. As stated in last year's report, in spite of continued efforts on our part, it is most difficult to make members understand that dues are payable in advance and not at the end of the year. An amendment was this year introduced so as to emphasize the importance of payment of dues semi-annually in advance. We are now introducing an amendment which we hope will be effectual in compelling members to pay their dues annually in advance, that is, on January 2 of every year. This should simplify the work of our office, and all members whose dues are not paid by March 1st will be dropped. We have this year dropped a considerable number of members, as you have heard, thus retaining insofar as possible only members who are prompt in the payment of their bills. We still have 13 members on our list, owing us \$165.75, all of whom have been retained because of special pleas that they have made, or because of promises to pay on or before a certain definite date. In all probability these 13 names will adorn our January program, in the column of “Members dropped for non-payment of dues.” It is surprising that this list should include men connected with large hospital associations, as well as holders of municipal offices. We have another list of 51 members who owe the

Society a total of \$301. If these members have not paid by the first of the year, they too will have the pleasure of seeing their names in print. It is most probable, however, that all of these 51 will pay.

Through the persistent efforts of the Librarian, Dr. Eloesser, \$126.50 was collected from members during the year, this money to be expended on the Library. The sale of duplicate journals increased this special fund, so that the Librarian was able to spend considerable in addition to the sum allotted to him by the Board of Directors, namely \$775.00.

A detailed financial statement follows:

Receipts.

Balance on hand December 10, 1911.....	\$ 863.42
Collected from members (dues and contributions to Library), rental of library and sale of bonds.....	\$12012.89
Total receipts.....	\$12876.31

Disbursements.

Rent	\$ 1200.00
California State Med. Soc. in lieu of exchanges	180.00
Salary of office assistant.....	885.00
Secretary's salary and bond.....	205.00
Laundry	18.00
Library (subscriptions, etc.).....	587.02
Binding	221.15
Printing (including envelopes and stamps for Soc. and Com.)	469.05
Telephone	104.75
Committee on Necrology (flowers and engraving)	7.00
Assessment to State Society.....	2216.00
Typewriter, desk and book racks for Lib...	122.00
Relief Fund	150.00
Bonds	4664.30
Balance on bond coupons (deposited in Sav. Union)	15.70
Entertainment	204.50
Incidentals (water; safe deposit box; insurance on lib., taxes, etc.).....	140.96
	\$11390.43
Balance on hand.....	\$ 1485.88

One hundred and fifty dollars, it will be seen, was given for the relief of the destitute family of a San Francisco physician, this money being spent as per custom, by order of the Board of Directors.

Of the money which appears under the disbursement for bonds, most of this was obtained from the sale of bonds, part of the so-called “Relief Fund,” the remainder being a loan to the Relief Fund for the purchase of the bonds.

Of the above loans, all but \$150 has been repaid.

Of the amount entered under expenses of the entertainment committee, \$148 was recovered from the members. An item of \$12.50 is here included, this being for the rental of chairs, made necessary by the large audience present at the Von Noorden meeting. It is possible that next year the executive committee will have to consider the purchase of additional chairs.

The Society this year purchased a typewriter and desk, the ones which we have been using having been the property of our former stenographer.

There are a number of bills totaling about \$250 for the year to be paid by the end of December, also several bills which the library has incurred and which will only be presented on the first of the year. As has been our custom, part of the latter bills are paid out of next year's budget.

It will thus be seen that with a balance of \$1485.88 cash in bank, with \$150 still due from the Relief Fund loan, and almost \$200 to be collected from men who will probably pay without much

more coercion, the Society is on an excellent financial basis. In other words, in spite of larger expenses as a result of more frequent and larger meetings, increased size of the program, after paying outstanding debts and collecting some outstanding dues, etc., we are about \$800 ahead of where we were last year.

In last year's statement, the following appeared: "The Society owns 5 San Francisco North Pacific bonds, expiring Jan. 1st, 1919; also 3 North Pacific Coast Railway bonds, expiring Jan. 1st, 1912. The accumulated interest of this fund amounted to \$1233.17 on July 1st, 1911, this money on deposit in the Savings Union Bank of San Francisco."

Sold: 5 S. F. & N. P. 5% bonds at 104....\$5200.00
Accrued interest—1 mo. and 12 days.. 29.17

	\$5229.17
Less Commission	12.50
	\$6216.67

Bought: 5 Spring Valley Water 4% bonds
at 95½\$4775.00
Accrued interest—2 mo. & 12 days 40.00
Commission 12.50

	\$4827.50
5 Pacific Tel. & Tel. 5% bonds at 100¼\$5012.50	
Accrued interest—1 mo. & 11 days 28.47	
Commission 12.50	
	\$5053.47
	\$9880.97

It will thus be seen that the Society now has in its possession 10 bonds of a practical value of \$1000 each. On January 1st \$225 will be obtained from the coupons, \$150 of which is still due the general fund of the Society. The sale of our other bonds, and the buying of new ones at a favorable time, has thus reaped a benefit for the Society of approximately \$150 to \$200, thanks to the Finance Committee.

To the chairman of the Entertainment Committee the secretary would especially like to extend his appreciation of the work done by him during the year, inasmuch as he feels that the Society does not realize the tremendous efforts necessary in the carrying out of impromptu dinners to celebrated visitors, as well as the getting up of a Christmas tree.

Respectfully submitted,
(Signed) RENÉ BINE.

Librarian's Report.

To the President and Members of the San Francisco County Medical Society.

Gentlemen:—The library has improved considerably during the past year. We have added 406 bound volumes to our files and have subscribed to 21 new journals. We have filled out the files of 24 journals by purchase and by exchange; some of these we have been able to complete, others, whose files would have been very expensive to fill out entirely we have completed for the last ten years, leaving the earlier and more expensive but less frequently called for volumes until such a time as our funds might warrant their purchase without curtailing the acquisition of books and journals of more immediate interest. We have had 235 volumes bound, our endeavor being to bind the more valuable and more frequently called for journals first; many of our files still remain to be bound, and in order to preserve them intact I recommend that next year's appropriation be made sufficient to have this done. Eye, ear, nose and throat, urological, gynecological and pediatric journals represent the greater part of the new subscriptions. Up to this year we felt ourselves able to subscribe to but very few specialistic journals,

considering that those of interest to the general practitioner should be taken first. With the division of the Society into sections, however, came demands for specialistic journals, and to these our increased budget has enabled us to accede. The library made agreements with the various sections by which they were to furnish or complete certain files of journals and systems of medicine, whereas the library was to pay for the new subscriptions. The eye, ear, nose and throat section has tried, through the librarian of the old Eye, Ear, Nose and Throat Society, Dr. Frederick, to carry out their part of the agreement, and Dr. Willard of the urological section has notified us of its willingness to do its share.

We have received cash contributions from the medical and surgical sections of \$51.00 and \$60.50 respectively, and \$15.00 for X-ray journals. With this money we bought Keen's Surgery, and subscribed to foreign archives of internal medicine, of pediatrics and X-ray.

We have cleaned the library of a quantity of duplicates, selling them at a good price to second-hand book dealers in New York and Leipzig and to the Stanford Library. The sale of these duplicates has brought us in round figures \$166.00.

The completion of our files could not have been carried out were it not for these very welcome additions to our budget.

Our budget was just sufficient to pay for the journals and their binding; our books have come to us from various sources, public and private. We are indebted to Dr. Sherman for a great number of useful surgical books, to Dr. Stelzner's widow for the books belonging to her late husband, and to several others. We owe thanks to the Society of German Physicians, which at its dissolution made over its valuable library to us, and to the State Journal, which lets us have the books sent in for review. In this connection I may mention that we will be glad to receive and acknowledge donations of modern text books and of all journals, old and new. Many of the members have books that would prove very acceptable for which they no longer have interest or use, and many of them have broken files of journals to which they no longer refer, but which might fill one of our greatly needed sets. The library would be very glad to know of such files. Furthermore, I would urge that the members show more interest in reviewing books. When we receive a book from the State Journal we send out a card to a member asking whether he will review the book. Often we get no reply, sometimes the book is taken for review, but months elapse and no review comes forth—sometimes we don't even get the book back. By good reviews and prompt ones we should get more publishers to send their recent publications in to the Journal, which is the main, almost the sole, source of our text-books.

The policy of the library has been to endeavor to provide a satisfactory working library for the general practitioner. Our budget is small, we have had to limit ourselves to this. I have tried therefore to make our files of journals of general interest, the weeklies and monthlies, particularly the domestic and the English ones, as complete as possible. There are many special journals, which we should still have. The purely scientific journals we have left aside. Our budget would not allow of any but a very scanty selection, and I have thought that the interests of the Society, i. e. of the general practitioner, would be better served by providing for the clinical side of medicine and leaving the journals of academic interest, the scientific journals, to the university libraries, whose duty it is to foster and provide for that part of the profession that is engaged in purely scientific research. In this way our files and those of the Lane Library in a measure complete each other.

In closing I would urge our two necessities on

your attention, viz., money—a liberal budget and liberal donations, and space—more ample quarters, for we have outgrown our own.

Respectfully submitted,
(Signed) LEO ELOESSER,
Librarian.

Report of the Milk Commission.

To the Members of the San Francisco County Medical Society:

Your Milk Commission has completed its seventh year of existence and its fifth year of active work. During the past year a fourth dairy, situated in Napa Valley, has been certified, and for the first time barns and complete equipment have been erected under the direction of our experts. An overhead trolley system is inaugurated to handle feed and manure; and overhead water pipes to prevent the dragging of hose over floors when in use in cleansing the animals prior to milking. The proprietor, an experienced dairyman, made this unsolicited comment: "It is easier work and takes less men to run this dairy than a commercial dairy of the same size."

A dairy at Bixler is in the process of certification, where the problem of the relation of milking machines to the bacterial content of milk will be worked out.

A new cap has been adopted for the certified milk bottles.

At the present moment there is considerable confusion in the distribution of milk due to the establishment of 7 a. m.—5 p. m. hours by the drivers in town, entailing the once a day delivery of milk. Under this arrangement, however, certified milk will reach the consumer at an earlier age.

The number of distributors has increased in San Francisco to sixteen, and the commission has appointed an inspector of distributing points, who will visit the stations and keep watch of the conditions as to icing, etc., in which milk is held. This is a new departure and your commission feels it will add much to the strength of the commission's work.

In November, the news of the death of Dr. Geo. S. Baker came to us. Dr. Baker had been on government work under the Bureau of Agriculture in the Philippines during the past year, and died at his home in Berkeley shortly after his return. He had a leave of absence from his position as a lay member of the Milk Commission for the year. Dr. Baker has given us throughout his four years of service on the commission most generously of his expert knowledge on dairy matters, and has served tirelessly on committees and dairy trips taking many hours of time. It was under his advice that we passed what is known as the 10% law, i. e., no cows may be added to a dairy herd coming from a bunch of cows which show more than 10% of reactors to the tuberculin test. This law was reported to the American Association of Medical Milk Commissions by Dr. Geo. Baker in 1910 at Philadelphia, where he represented us, and approved by them.

At present 3642 quarts of milk are sold daily under our certification in San Francisco County; 176 on the Southern Pacific Railroad, and 219 in Marin County, making a total of 4037.

Our commission, in conjunction with the Alameda County Milk Commission, has sent a delegate for the past two years to the annual meeting of the American Association of Medical Milk Commissions. This we regard of great value to us as it keeps our commission in close association with the work throughout the country.

We have received the resignation of Dr. Lewis S. Mace, who has served for four years as a member of the commission, and for one year as its president.

During the year three lectures have been given on Phases of the Milk Supply and Certified Milk, to audiences in San Rafael, the students of the University of California in a course on Civic Problems, and to the Cooper Science Club. The slides illustrating these lectures (some 40) have been loaned to the Chinese Y. M. C. A., and may be borrowed for any lecturer's use who wishes to help the appreciation of the value of pure milk.

Your commission relies on the University of California for the chemical and bacteriological as well as veterinary work at the dairies, and wishes here to thank Professor Jaffa and Dr. Roadhouse for their faithful work and constant interest.

The commission is solvent. Its income is derived from the tax of 50 cents per thousand on the caps, and this covers the expenses of assistant secretary and inspector, visits of the commission to dairies, etc.

A closer acquaintance with the working charts and records of the commission on the part of the Medical Society is greatly desired. More active co-operation by the medical profession, which would follow an understanding of what your commission is attaining, could double the sales of certified milk and reduce infant mortality and morbidity from intestinal diseases correspondingly.

Respectfully submitted,
ADELAIDE BROWN, President,
Milk Commission, S. F. Co. Medical Society.

Report of the Committee on Admissions.

Your Committee on Admissions begs to report as follows:

During the year ending with the December meeting, 40 members have been admitted into our Society. It was found necessary during this time to reject four candidates. This committee has taken the stand that, with the exception of members transferred from other county societies, it would not consider the name of any candidate for membership until he had practiced for at least six months within this city. This was found necessary in order to show a man's qualifications and attitude toward the profession and the public before hurrying him into membership. We also have rejected applicants doing contract practice for so-called "dollar a month societies." This move was actuated by the medical defense clause in our State Society's By-laws. We feel that one doing a large amount of practice for insufficient pay is more liable to be sued than others, and the sum of one dollar a year is far too little to insure such applicants. We would recommend that this point be emphasized at the next meeting of the State Society, and earnestly request that it be included in our by-laws.

Signed: GEORGE D. CULVER,
C. A. WOOD,
SHADWORTH O. BEASLEY,
W. S. FRANKLIN, Chairman.

Report of the Hospital Commission.

To the Officers and Members of the San Francisco County Medical Society.

Gentlemen:—The Hospital Commission of the San Francisco County Medical Society begs leave to submit the following report for your favorable consideration:

The following communication dated October 16th, 1912, was received by the commission:

Alexander Maternity Cottage,
3700 California St.,
San Francisco.

Dear Sirs:

Enclosed please find copy of rates for the Alexander Maternity Cottage service of the Children's Hospital.

MATERNITY RATES.

House cases, \$50.00 for two weeks' care. Price includes delivery room fee, drugs and dressings.

Private patients, \$4.00 and \$5.00 per day; delivery room fee and dressings, \$10.00; all drugs extra.

The \$50.00 rate is for house cases unable to afford a private physician. These cases will be cared for under our staff, thus giving internes and pupil nurses the opportunity for practical experience.

Will your committee kindly consider this new rating in passing on the ethical position of the Children's Hospital, as the rates at the Maternity were the basis for your former criticism?

Hoping this will meet with the favorable consideration of your honorable body and requesting that you kindly let us know the action of your committee,

Very sincerely,
(Signed) JENNIE H. DUNBAR,
General Secretary.

This new rate for house cases which is now in operation at the Alexander Maternity Cottage will be instrumental in correcting many abuses that formerly existed in the disposition of this class of patients. This arrangement is satisfactory to your commission and renders the Alexander Maternity "an approved hospital" within the meaning of the resolutions regulating the conduct of hospitals.

Dr. Rene Bine has notified the Hospital Commission of a recent interview with the president of the French Benevolent Association, in which this gentleman commented on the derogatory report of this commission concerning his institution, and he expressed a desire to discuss the issues involved. This information is very pleasing to the commission, and we shall gladly enlist the co-operation of Dr. Bine in perfecting the arrangements for such a conference.

Nothing new have developed in the relations of the German Benevolent Association and the Hospital Commission. As far as we can ascertain the gratuities of the hospital are still distributed to both classes of members, and the breach is widening between the original purposes of the organization and to-day's system of quasi-benevolence. In view of a meeting with the French Hospital authorities, and the possibility of something tangible resulting therefrom, it was deemed a matter of equity by your commission to refrain from making a final recommendatory report in the matter of the German Hospital.

Your Hospital Commission deprecates the fact that the wheels of medical reform move so slowly, but its members look forward to the coming year for the solution of many vexatious problems.

(Signed) THOMAS D. MAHER,
Chairman.

Many thanks are due the gentlemen who helped in such great measure in the evening's entertainment:

1. Quartet for piano and strings.....
.....Beethoven, Opus 16
Andante cantabile.
Rondo, allegro ma non troppo.
Dr. M. W. Fredrick, Dr. L. Eloesser, Dr. E. A. Victors, Dr. H. I. Wiel.
2. Vocal solo—
"Mother o' Mine".....B. Tours
"Gray Days".....Noel Johnson
Dr. H. S. Moore.
Dr. Wiel at the piano.
3. Quartet for piano and strings.....Mozart
Andante.
Rondo, allegro.
Dr. M. W. Fredrick, Dr. L. Eloesser, Dr. E. A. Victors, Dr. H. I. Wiel.

Section on Surgery.

December 17, 1912.

1. Recent Advances in Obstetric Pathology.
Dr. L. Breitstein.

2. Exhibition of Clinical Cases:

Carcinoma of Penis; X-Ray Plates of Renal Stone; Operation for Infantile Paralysis. Dr. W. B. Coffey.

Three Cases of Poliomyelitis Paralysis. Dr. S. J. Hunkin.

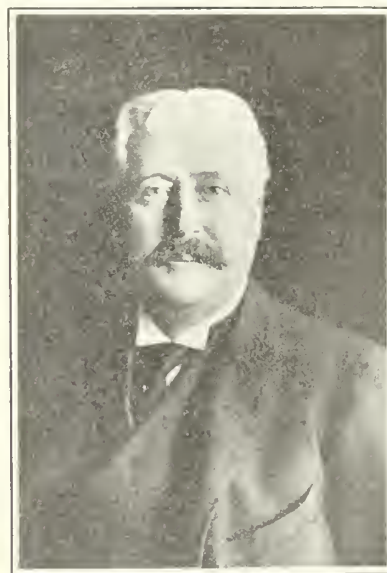
Case of Chronic Multiple Arthritis (Ulcerative and Adhesive); Spindle-cell Sarcoma of Sacrum. Dr. J. Rosenstirn.

Description of an Obstetrical Indicator. Dr. H. Spiro.

DR. BEVERLEY MACMONAGLE.

Dr. Beverley MacMonagle was born in Sussex, New Brunswick, on October 19th, 1855, and graduated from Harvard University in the year 1876.

For some time after graduation he did not enjoy the rugged good health that voiced itself in his appearance and every action during his subsequent life, and on the advice of his physician he spent nearly a year with the cowboys on the cattle ranges, leading a life that not only restored his health but that, without doubt, did much to develop the self-reliance that stood him well in



the practice of his profession and made him a tower of strength to many who received his aid and sympathy.

Upon his arrival in San Francisco in 1884 he became associated with the late Dr. John Scott in the work at the California Woman's Hospital, and for many years was surgeon-in-chief of that institution, a position that put him in the forefront of gynecologists, although he did not limit himself to that specialty. For six years he was associate in the chair of Gynecology in the University of California, but resigned in 1906, a few months after the earthquake, as the destruction of the hospitals diminished the amount of clinical material to such an extent that there was not suf-

cient to constitute two services, and at the same time his duties as gynecologist at the Hospital for Women and Sick Children required as much time as he could spare from his other work.

In the spring of 1910 he had a mild attack of aphasia from which he recovered after a few weeks, but he made up his mind that he would rest for at least two years, and even then would not resume practice unless he felt perfectly able to do so. In accordance with this resolution he went to Europe, where he enjoyed comparatively good health, spending most of his time motoring through the Continent and Great Britain, until within two weeks of his death, when he suddenly developed an acute exacerbation of a nephritic trouble from which he had suffered for two or three years. He died at the American Hospital in Paris, France, upon the 22nd day of May, 1912.

With the passing of Beverley MacMonagle the medical profession lost a member who had all the natural qualities of a leader—ability, judgment, integrity, courage, sympathy and an impressive personality. If Dr. MacMonagle undertook the responsibility of a case, he discharged his duty with equal fidelity irrespective of whether the patient were prince or pauper. His patients were his friends.
WM. WATT KERR.

DR. EMIL STELTZNER.

Dr. Emil Steltzner was born Jan. 18, 1862, in Frankfurt-on-Oder, the son of highly cultured and well-to-do parents. Receiving a broad and excellent education, his natural marvelous gift for music was cultivated, so that his musical attainments almost rivaled his scientific achievements. He studied medicine at Halle, Berlin, Bonn, and Leipzig, taking his degree at the last named university.



In 1891 he came to America and located at Alameda, from which place he moved to San Francisco in 1900.

Emil Steltzner specialized in gynecology and was known amongst his associates as a walking encyclopedia of medical literature. For many years he was the treasurer and librarian of the German Medical Society, sacrificing a great deal of time and labor in the furthering of the work of this organization.

The last two years of his life were for him

years of atrocious suffering, the result of a lymphosarcoma of the peribronchial glands. Gradually the jovial and popular man withdrew from most societies in which he formerly took an active interest and shunned everybody with the exception of a very few select friends.

His death occurred on December 12, 1911. He left a widow and a nine-year-old son.

A large number of Dr. Steltzner's valuable medical works were left to the library of the San Francisco County Medical Society.

VICTOR C. VECKI.

DR. JAMES B. HANNAH.

James B. Hannah was born in Toronto, Canada, September 21st, 1864. Here he received his preliminary education and resided until 1892, in which year he came to San Francisco. During the former part of his residence in San Francisco he



was an active member in the contracting firm of Hannah Bros. In 1898 he began the study of medicine in Cooper Medical College, graduating with the class of 1902. Since graduation he had been engaged in the practice of his profession in San Francisco.

Dr. Hannah had been for a number of years a member in good standing of the San Francisco County Medical Society. His untiring efforts to relieve human suffering are highly appreciated by his confreres and a large clientele. He stood high in the ranks of Freemasonry, having been a member of Alpha Lodge No. 384, G. R. C., since 1887, and of Antiquity Chapter No. 91 since 1889.

The cause of his demise, which occurred on July 28th, 1912, was follicular tonsillitis of forty-eight hours' duration, this latter causing an acute exacerbation of a chronic myocarditis.

Dr. Hannah is survived by his wife, four children, and a host of bereaved friends.

H. EDWARD CASTLE.

SONOMA COUNTY.

The annual meeting of the Sonoma County Medical Society was held at the offices of the President, Dr. R. M. Bonar, at Santa Rosa, on December 21, 1912.

The following officers were elected for the en-

suings year: President, Dr. Jackson Temple, Santa Rosa; vice-president, Dr. J. W. Scannell, Santa Rosa; secretary, Dr. A. R. Howard, Santa Rosa; treasurer, Dr. F. O. Pryor, Santa Rosa; censor, Dr. J. W. Seawell, Healdsburg; delegate, Dr. R. M. Bonar, Santa Rosa; alternate, Dr. J. W. Cline, Santa Rosa.

RESOLUTIONS ON THE DEATH OF DR. GEO. S. BAKER.

Whereas, Dr. George S. Baker has served on the Milk Commission of the San Francisco County Medical Society for the past four years and has given valuable aid and counsel at every point;

Whereas, This service is one to humanity and a gratuitous contribution of time and strength quite outside the lines of his professional work;

Resolved, That the Milk Commission of the San Francisco County Medical Society deeply deplores the loss of Dr. Baker's service to the Department of Agriculture, and especially the loss to our community of his wisdom and knowledge as a member of this Commission.

Resolved, That a copy of these resolutions be sent to Dr. Baker's family and that they be published in the California State Journal of Medicine.

Signed:

The Milk Commission of the San Francisco County Medical Society.

ADELAIDE BROWN, President.

E. C. FLEISCHNER, Secretary.

December 17th, 1912.

NEWS NOTES FROM NEWSPAPERS.

Susanville has a case of smallpox.

Santa Cruz county has appointed Dr. W. H. Keck health officer.

Colusa county has reappointed Dr. C. A. Poage as health officer.

Dr. McNulty has been appointed health officer of Siskiyou county.

San Jose has reappointed Dr. J. J. Kocher at the head of its health board.

The Children's Hospital, San Francisco, has just opened its new addition.

Orange county has reappointed Dr. John Wehrly as health officer for two years.

Hanford has another hospital, the Doran, which was opened for patients in January.

Shasta county has reappointed Dr. F. Stabel as health officer and hospital physician.

During 1912, 2120 physicians died in the United States, the average age being 60 years and 23 days.

The University of California Medical Department is to receive \$400,000 to build and equip an additional hospital.

Alpine county, the smallest county in the State, has not reported a single death from tuberculosis in the past five years.

The California Hospital, Los Angeles, is to begin the reconstruction of its buildings, making them all Class A buildings.

Salinas has met with a misfortune in the closing of its hospital, the Jim Bardin, which the owner reports did not pay.

Fresno county reports 86 cases of smallpox during the last year and 294 cases of contagious diseases of all sorts, mostly measles.

Dr. G. W. Burk, of Sisson, is reported to have been arrested for not complying with the law in regard to reporting contagious diseases.

Dr. H. N. Rowell has resigned as physician to the adult blind institution at Berkeley and Dr. Myra Knox has been appointed to fill his place.

A bill before the Legislature would provide for persons who are mentally sick, but not insane, and who do not really belong in an insane asylum.

At Oroville the health officer is urging a strict and drastic fight against unmuzzled dogs, for he wisely wishes to keep rabies out of his territory.

Tuberculosis caused the deaths of 23,831 persons in California during the past five years, according to figures given out by the State Board of Health.

At Vallejo a "Dr." E. M. Carpenter, a chiropodist, was arrested recently for practicing medicine illegally; he was suspected of having performed an abortion.

The Slingsby case of baby substitution seems to be keeping its place of attractiveness in the press. It is all so melodramatic and "dimenovelly" that it is probably true.

At Stockton the medical inspection of school children has proved of great value and Dr. Goodman reports that 970 children were found to be in need of medical or dental care.

The Pomona valley hospital building was destroyed by fire on December 21st, and the newspaper accounts give great credit to the heroism of the nurses in saving the patients.

Dr. Carl G. Wilson is reported to have made a charge of \$35 which the grateful patient considered too low and so sent him a check for \$1000! Would that there were more such patients.

Butte county is to be congratulated upon its health officer, Dr. L. Q. Thompson, and some day the Chico "Enterprise" will be sorry it attacked him for his work against smallpox.

At Livingston, a man by the name of Harold Sampson was recently convicted of practicing medicine illegally and sentenced to the county jail for 180 days; the sentence was suspended during good behavior.

The Stockton "Record" talks about "Medical Tyranny" because doctors object to pharmacists practicing medicine. Would the editor of the "Record" like to have his druggist take care of him in an illness?

Whooping cough is the subject of a pamphlet issued by the Public Health Service and written by our old friend Dr. Colby Rucker; the service is doing a valuable work in issuing these pamphlets on timely subjects for general distribution.

Dr. A. E. Osborne has resigned as superintendent at the Napa State Hospital and Dr. A. W. Hoisholt has been appointed from the Stockton institution to take his place. Dr. Margaret Smyth has been promoted to take Dr. Hoisholt's place at Stockton.

Berkeley is having a nice little epidemic of smallpox and one can hardly imagine a more appropriate place in which to locate such an epidemic. Berkeley has been the center of the anti-vaccination agitation for a number of years. The schools and Sunday-schools are closed.

George Gelder, attorney for Bohannon, the cancer quack, wants Berkeley to pass an ordinance to prevent physicians from spreading contagious diseases! The same erudite gentleman, who is in the Assembly, would make it a misdemeanor or a felony or something awful for anyone to require anyone else to be vaccinated.

BOOK REVIEWS

Skin Grafting. By Leonard Freeman. Quarto, cloth. Pages 129. C. V. Mosby Co., St. Louis, Publishers. Price \$1.50.

There is not much good to be said of this book. It contains nothing new; as a compilation it is incomplete, sometimes inaccurate and contains statements of opinion not at all in accord with modern teaching. Numerous references to the earlier literature will make it welcome to those interested in the historical development of the subject. The opportunity for an exposition of the many problems connected with skin grafting—absorbing ones and full of actual interest—has been let pass. • L. E.

Microbes and Toxins. By Dr. Etienne Burnet. Translated from the French by C. Broquet and W. M. Scott. Science Series, G. P. Putnam's Sons, 1912. Price \$2.00.

Burnet's aim in this book of some 300 pages is to bring the bacteriological science from the laboratory and set it before the reading public. Only those who have experienced the difficulty of putting medical science into popular form will appreciate Burnet's work. He reveals a universe of micro-organisms, some beneficent, others mischievous, upon which the science of bacteriology is founded. For the layman the first half of the book will solve many questions, as to just what germs are, their form, their mode of life and ways of invading man. For the student and practitioner no more interesting or more fascinating reading can be found than Burnet's chapters on immunity, anaphylaxis, vaccines and sera and the conquests and still unlimited possibilities of chemotherapy. E. D. D.

A Treatise on Pellagra for the General Practitioner. By Edward Jenner Wood, S. B., M. D. Published by D. Appleton & Co., New York and London. 1912.

The general practitioner who resorts to this book for his knowledge of pellagra will find it difficult to wade through the mass of summaries, quotations, and translations which form the opening chapters on history and etiology. The book consists essentially of reading notes, unnecessarily complete and presented in many places without a clear indication of the purpose of their introduction. The chapters devoted to description of the disease are enlivened by helpful pictures and by illustrative material from the author's own experience with four hundred cases. On the basis of history and of his American experience, the author considers the maize theory of the causation of pellagra to be untenable. In describing the skin lesions he places great emphasis on their accurate symmetry and he considers this point of great diagnostic importance. While the book has many faults in style and construction, it will nevertheless justify its existence by making available the author's extensive observations on pellagra as it occurs in America. W. A. S.

Arteriosclerosis. By Louis M. Warfield, A. B., M. D. Second edition. C. V. Mosby Co., St. Louis, 1912. Price \$2.50.

The author, addressing himself to the general practitioner, has endeavored to give a "readable authoritative essay on a disease which is especially an outcome of modern civilization." The

parts of the book most likely to accomplish this purpose are the chapters on symptoms, prognosis, and treatment of arteriosclerosis, and on its relation to life insurance, where the author speaks with the force and interest of personal experience. Many of the other chapters do not give the reader this favorable impression. They frankly consist largely of summaries or extracts from the opinions of others, which have been put together without the amount of criticism one would expect in a truly authoritative monograph. In common with too much of the literature which the practitioner is asked to read, words are not economized, and the reader who conscientiously goes over these 200 pages will feel that a small percentage of this space would have sufficed to give him all the important facts. In addition to lack of discrimination and conciseness, this defect is referable to errors of arrangement. For example, one finds discussion of auscultatory phenomena below the blood pressure cuff in three separate places. Again, blood pressure instruments are discussed on page 61 et seq. and a second time beginning on page 124. Historical comments are made in both places; in the first Marey is given credit for devising the first useful blood pressure instrument in 1876, in the second reference is made to V. Basch as having made the first one in 1887. Many other examples of defective editing might be pointed out. The remarks on the physics of blood pressure instruments are nothing short of naive. E. S. K.

Surgery and Diseases of the Mouth and Jaws.

By Vilray Papin Blair. Quarto, cloth. Pages 638. C. V. Mosby Co., St. Louis, Publishers. Price \$5.00.

The author has combined both the dental and the surgical aspects of the diseases of the mouth and jaws in an unusually good and thorough presentation. Many good illustrations of dental deformity and disease incident to disease of the mouth and jaws, and an explicit and clear text will make the dental part of this treatise especially valuable to the general surgeon, being an aspect of the subject hitherto little considered in surgical text-books. The chapters on fractures of the mandible and on cleft palate and hare-lip are excellent; they present points of view that should be of use in preventing dental errors often made by the general surgeon in treating these conditions. To the dentist the book may be recommended as everywhere embodying sound surgical principles, and as the fruit of a wide surgical experience. Photographs of specimens from London museums, taken especially for this book, descriptions of methods witnessed at foreign hospitals, plates of casts and anatomical dissections evidence the labor and care bestowed on the work, which however is not a mere compilation, but gives plentiful expression to the author's personal opinion—the result of wide experience and of sane and critical judgment. The first few chapters are for the benefit of the dental student and are devoted to general surgery, the remaining ones treat the diseases of the mouth and jaws proper. A book of this kind is rare; as a textbook it is ideal, as a work of reference it may be warmly recommended to both the general and the dental surgeon. L. E.

Text Book on the Pathogenic Bacteria and Protozoa. Seventh edition, thoroughly revised. A text book upon the Pathogenic Bacteria and Protozoa. For Students of Medicine and Physicians. By Joseph McFarland, M. D., Professor of Pathology and Bacteriology in the

Medico-Chirurgical College, Philadelphia. Seventh edition, thoroughly revised. Octavo of 878 pages, 293 illustrations, a number of them in colors. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$3.50 net.

One must consider this book from the standpoint of the student, the practitioner, and the specialist. The text is absolutely inadequate in many places for the student, i. e., p. 182, in his description of Gram's method of staining, the essential details of this most important test are omitted. For the specialist the book is out of the question, being too inaccurate, indefinite, and inadequate. On the other hand it would be a fair book for the busy practitioner for reference and to give him a brief résumé of the literature to date. With a like number of other recent publications, the author has attempted to devote too much space to the more recent methods and conditions, in many ways neglecting more important "old" subjects. The bacteriological side of sanitation is neglected to a sad degree, this important branch of the subject being merely touched upon. A few of his experiments showing lack of detail are as follows: autoclave, p. 232; antiseptics, p. 302; Wassermann reaction, p. 334; stools in typhoid, p. 650.

The illustrations are to be commended, most of them being simple, clear, and easily understood. S. R. D.

New Aspects of Diabetes, Pathology and Treatment. By Prof. Dr. Carl von Noorden.

Published by E. B. Treat & Co., New York. 1912. Price \$1.50.

This is the latest of the well-known red covered books with which this firm of publishers has kept the American medical public in touch with the work of von Noorden. This monograph covers a series of lectures delivered during October, 1912, before the New York Post-Graduate Medical School. Physicians and students in San Francisco had the opportunity of hearing two of these lectures (San Francisco County Medical Society, Oct. 15, 1912; Stanford University, Oct. 21, 1912), and they will surely welcome the opportunity of having these in permanent form. There are many points presented by von Noorden which differ from our older accepted views, the most radical being the one expressed as to the harmlessness of the ketonuria so often seen on changing to a strict diet, this being a source of great worry to the average physician who only too frequently sees in this an indication for the administration of carbohydrates. The relations of the various glands with internal secretions to the pancreas are interestingly shown, though it must be confessed that but little practical value so far as therapy is concerned, has resulted from this study.

The translation of these lectures leaves a great deal to be desired, especially the first chapters. Their perusal is thus deprived of a great deal of the pleasure which they would otherwise afford. It would seem as if the haste with which they were translated and published had something to do with this. To German readers we would recommend the sixth edition of von Noorden's "Die Zuckerkrankheit und ihre Behandlung," published by Aug. Hirschwald in Berlin, February, 1912, as being just as modern and far more comprehensive in scope. R. B.

The Practice of Dentistry. A practical treatise upon the general practice of Dentistry, Operative and Prosthetic, exclusive of Orthodontic Practice. By Leo Greenbaum, M. D., D. D. S.,

formerly Dean and Professor of Clinical Dentistry, Materia Medica and Anaesthesia, Philadelphia Dental College, and Max Greenbaum, formerly Quiz Master, Philadelphia Dental College. 350 illustrations. D. Appleton & Co., 1912.

The work is an effort to embrace nearly everything relating to modern dental practice in one book with the exception noted in the title. Chapters 1 and 2 on dentition present subject-matter not usually found in works on operative dentistry, and though the author may differ with medical opinion in therapeutic measures, basing his judgment on clinical experience, under present dental educational conditions it has some value. A review of the history of the cause of dental caries is followed by a statement of the generally accepted theories of to-day. Nothing new is presented in operative procedure under nomenclature, cavity preparation, or the use of filling materials, Dr. G. V. Black's recent work being quoted very largely. Many of the illustrations were published in dental text-books thirty years ago. Burchard's Dental Pathology and Buckley's Materia Medica and Therapeutics are quoted frequently in the chapters dealing with those subjects. In the treatment for the removal of the dental pulp, no mention whatever is made of novocain, so generally used in pressure, peridental, and intraosseous anesthesia. The chapter on Oral Hygiene for children might be of some interest to the medical practitioner. Section II on Prosthodontia is a more modern presentation, and deals very generally with all phases of this field of dental science, especially crown and bridge work. Quite all of the illustrations and descriptive matter on anatomical articulation appeared in Dental Digest in 1910 and later was donated to the profession in book form as a premium with a subscription to that journal. It is difficult to conceive of one's library being concentrated in a single volume.

GUY S. MILLBERRY.

TWO YEARS' INTERNESHIP—GOOD SAMARITAN HOSPITAL, GUANAJUATO, MEXICO.

This is a missionary hospital which was started by the Methodist Episcopal Church. Another Christian doctor is needed for the staff.

Guanajuato is a city of 60,000, the capital of the state of the same name. It is located 160 miles northwest of Mexico City. It stands at an altitude of 6,500 feet in a rich silver-mining region. The Mexican Central Railroad passes through the city.

One year's report of the hospital staff shows 339 visits to homes, 4,579 consultations, 24,523 treatments, 52 major and 279 minor surgical operations, medicines furnished 17,587 patients. Fifteen different nationalities were included among those who were treated.

For the interneship a man is required who has had a thorough medical education and who is prepared to make his professional knowledge and skill directly subservient to the furtherance of the gospel.

Communications may be addressed to the director of the hospital, Dr. Levi B. Salmans, Good Samaritan Hospital, Guanajuato, Mexico.

The undersigned will be glad to communicate with any medical men who are interested in the need for physicians in foreign countries.

Mr. Wilbert B. Smith, 125 East 27th Street, New York City.

AN INTERESTING CIRCULAR.

Chicago, Dec. 12, 1912.

Members of the American Surgical Trade Association.

Gentlemen:—During the last month the postal authorities have made a very active campaign against persons and firms who are selling medicines and devices for the purpose of practicing "race suicide," and about 200 persons have been arrested in different parts of the country and are now being prosecuted.

In practically all surgical instrument catalogues there are certain pessaries, aluminum stems, etc., advertised for sale, which were originally designed for legitimate purposes, and therefore it occurred to your president, that some day an over-zealous official might swoop down on some of our members and prosecute them on account of selling these legitimate surgical instruments. In order to guard against such a contingency, I have asked our legal advisor, Mr. F. B. Hovey, to look up the law on this subject, and have a consultation with the Chief Postal Inspector, to clear up the situation. The law reads as follows:

"Everything designed or intended (or adopted) for the purpose of preventing conception or procuring abortion shall not be mailed."

We further are informed that the Inter-State Commerce Commission has also made a ruling that such articles cannot be sent by express from State to State. The inspector informed our attorney that the postal department has no judicial power and an absolute ruling could not be had unless the matter was put before headquarters in Washington. He believes, however, that any article that has been designed for a legitimate medical or surgical purpose other than prevention of conception, when sold to reputable physicians only, will not be made the basis of prosecution unless the present attitude of the postal authorities changes. It seems advisable, therefore, that we should instruct our salesmen when selling these instruments that they mention the fact that their firm sells them with the understanding that they be used only for the purpose for which they were originally intended. The sale of Mizpah or other pessaries of that type, fish skins, Neverrips, etc., are absolutely prohibited.

Respectfully,

V. MUELLER.

REPORT ON CONDITION OF ACCOUNTS OF STATE BOARD OF HEALTH.

January 6, 1913.

His Excellency, Hiram W. Johnson, Governor of California, Sacramento, Cal.:

Sir:—An audit of the accounts of the State Board of Health for the period beginning July 1, 1909, and ending June 30, 1912, has disclosed certain discrepancies and methods of doing business which it is deemed proper to call to your attention.

As a net result of the audit, Dr. W. F. Snow, Secretary of the Board, has been required to return to the funds of the State Board of Health a total of \$705.47 to cover discrepancies.

At the outset, it is the duty of this board to make plain to you that, although the Secretary had to return this amount, there is no suggestion of any criminal action on his part. The returning of this money by Dr. Snow is the direct result of the vicious system of transacting State business which had grown up in so many departments and institutions.

Some idea of the inefficiency of the old methods

and the confusion arising therefrom can be had from a knowledge of the fact that it took expert accountants the greater part of three months to reconstruct the records of the State Board of Health for the period of audit. In many instances the records were absolutely worthless, admitting of no check or countercheck and presupposing as a part of the system an accurate memory on the part of the person in charge.

The discrepancies making up the total of \$705.47 cover the entire period of the audit. There are so many and they are of such a variety that a recitation of them would be in effect a duplication of the report of the audit by the accountants. Therefore, a copy of the report is hereto attached and made a part of this special report.

Steps have been taken to properly formulate the business methods of the State Board of Health and to prevent recurrence of the discrepancies and confusion which have arisen under the old system.

Of the amount returned by Dr. Snow, \$329.14 has already been deposited to the account of the State Board of Health in the California National Bank. Herewith transmitted to you are a certified check for \$350 and a check on the Bank of Palo Alto for \$26.33 to cover the balance of the discrepancies.

This report is respectfully submitted this sixth day of January, 1913.

STATE BOARD OF CONTROL,

JOHN FRANCIS NEYLAN, Chairman.

CLYDE L. SEAVEY.

W. H. HUMPHREY.

Report Covering Affairs of State Board of Medical Examiners and Supplementary Report.

His Excellency, Hiram W. Johnson, Governor of California:

Sir:—The State Board of Control has completed an audit and investigation of the affairs of the State Board of Medical Examiners. The results of the audit and investigation are herewith respectfully submitted.

Enclosed you will find certificate of deposit numbered 2,942 of the Citizens' Bank of Alameda drawn in favor of Hiram W. Johnson, trustee, for the sum of \$1,324.40. This sum represents restitution to the funds of the medical board of certain amounts found short in the accounts of Dr. Charles L. Tisdale, secretary. The shortage of these funds, while important from a monetary standpoint, had an additional significance in view of the fact that it represents the unrecorded admission fees of thirty-nine physicians and surgeons in the State whose right to practice their profession could have been challenged.

Enclosed you will also find certain correspondence which came into the hands of accountants of the State Board of Control during their audit. Your attention is respectfully directed to this correspondence as it contains data which will throw light upon the methods formerly employed in conducting examinations of applicants for admission to the medical profession. These methods were employed by the former board of which Dr. Charles L. Tisdale was also secretary.

The period of audit extended from May 3, 1907, to March 18, 1912. The analysis of the records for this period shows that the method of handling the board's money was loose and that but little attention was paid by the board in general to its financial affairs, this being left in the hands of the secretary. Although the income was amply sufficient for its needs, the board almost constantly found itself in straitened circumstances.

This board, like others charged with the enforcement of vocational laws, expended large amounts for attorneys' fees and the returns were meager, with the exception of Attorney Frost, who seems to have rendered full value. The method of handling

the routine business of the board was cumbersome and inefficient, chiefly for the reason that it devolved largely upon the clerks employed under a co-operative agreement with a gentleman who was not a member of the board, but maintained adjoining offices.

The State Board of Control respectfully advises your Excellency that the loose methods which prevailed in the handling of the board's money could not have existed had these funds been deposited in the state treasury and paid out upon warrant of the Controller, as is done in the case of the administrative departments of the state government.

The detailed analysis of the accounts of the medical board shows that Dr. Tisdale did not record in his cash book or transmit to the treasurer of the board the statutory admission fees paid by thirty-nine applicants for license to practice in California.

An examination of the cash book shows that in certain instances the names of these applicants and the record of their payments had been made in the cash book and had been subsequently erased. These shortages in the cash book were then covered up by bulking the remittances to the treasurer of the board, who had no original data from which to check the amounts he had received. There was never any reconciliation of the books of the treasurer and secretary, hence the shortage never came to light.

This total of \$1,025 is the amount of fees received but unrecorded. In addition to this, an item of \$299.40 was missing from the records of the board. This was money collected in fines from illegal practitioners.

Under the method which has prevailed the medical board received and kept in possession of its secretary all revenue received from applicants for admission, which is the chief source of revenue. In cases of prosecution where fines were imposed, however, the money was transmitted directly from the county to the state treasury. Subsequently the secretary of the board drew on the treasury for the amount of the fines.

Fines aggregating \$300 had been deposited in the state treasury and on May 1, 1908, Dr. Tisdale drew a claim for this amount. The claim was allowed and the money, less sixty cents exchange, was transmitted to the Citizens' Bank of Alameda to the credit of Dr. Tisdale. Its receipt was never recorded on the books of the medical board.

This amount, in addition to the \$1,025 short in admission fees, makes the total of \$1,324.40 refunded to the treasury of the board by Dr. Tisdale. Because of the absence of records it is impossible to check the amount of money received in fines, and it is impossible to determine whether all fines were transmitted to the state treasury. The attorneys employed apparently made no report of prosecutions except in a few cases and the secretary of the board made none.

Attorney C. A. S. Frost, employed since July, 1910, was the sole exception. This gentleman rendered a report and examination of the records shows that as a result of his prosecutions approximately \$1,600 in fines was collected. His services cost the board \$2,074.25.

Eliminating the employment of Mr. Frost, it is found that more than \$8,000 was expended in attorneys' fees and the only collected fines recorded aggregate \$1,700.

Another feature of the records of the board which is interesting is contained in the record of per diems paid to members of the board which retired in 1909. On one occasion a member of the board sent his proxy to be voted by a conferee who was present. The vote was recorded by proxy, but the per diem records show that the absent member received \$21 as per diem.

Numerous other incidents could be quoted to

bring to the attention of your Excellency the utter lack of method or regard displayed in handling the business of the board. What influences were at work in the board will be apparent from the accompanying correspondence.

This report is respectfully submitted this 22d day of August, 1912.

STATE BOARD OF CONTROL,
JOHN FRANCIS NEYLAN, Chairman.
CLYDE L. SEAVEY.
FRED. C. NELLIS.

Supplemental Report.

Dec. 26, 1912.

His Excellency, Hiram W. Johnson, Governor of California.

Sir:—Pursuant to your instructions, I have completed a supplemental inquiry into the affairs of the State Board of Medical Examiners, and herewith respectfully resubmit the report of this board, together with the correspondence attached, and certain facts hereinafter set forth.

You are respectfully advised at this time that no evidence of substantial character has been brought to light which would tend to prove that any one but Dr. Tisdale profited by the transactions set forth in the original report. His admission that he alone profited, I believe, can be taken at its face value.

Supplemental inquiry has served to still further accentuate the fact that in these vocational boards created to regulate professions the business and financial details are left entirely in the hands of one or two members, and the remaining members neglect to give them even the slightest attention. The results of such neglect upon the part of other members are well exemplified in the conditions which prevailed in the former State Board of Examiners in Optometry, and in the medical board until its accounts were audited.

In view of the facts developed, I would respectfully urge upon you that legal provision should be made requiring all boards, bureaus, offices, or commissions empowered by law to collect money to deposit the same with the state treasury and disburse it in accordance with the usual procedure subject to the audit of this Board and of the State Controller.

I have completed this supplemental inquiry by having a member of the accounting department of this board thoroughly scrutinize all transactions since the completion of the former audit. The accounts have been found to be in proper condition during that time.

The final submission of this matter has been delayed because of the fact that as a member of this board, I have had to devote my entire time for eleven weeks past with the other members of the board to the preparation of the budget for the sixty-five and sixty-sixth fiscal years.

Respectfully,

STATE BOARD OF CONTROL,
JOHN FRANCIS NEYLAN, Chairman.

Summary of Results of Investigation of State Board of Medical Examiners.

1. Records of the board have been reconstructed and correct record made of all moneys received.
2. Petty grafting by secretary has been effectually stopped.
3. In original and supplemental reports complete data has been placed in the hands of His Excellency, Hiram W. Johnson, on which to fix responsibility for condition of board's affairs in the past.
4. The standing of thirty-nine physicians which was jeopardized by failure to record payment of their fees has been put beyond question.

BOARD OF EXAMINERS, DECEMBER, 1912, SESSION.

Passed.

School of Medicine.	Date of Graduation.	Percentage.
Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	6, 24, 09	85.1
Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	6, 15, 11	81.3
Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	6, 13, 12	80.1
Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	—, —, 05	78.4*
Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	6, 13, 12	78.2
Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	6, 13, 12	77.6*
Coll. Phys. & Surgs., San Francisco, Calif.....	6, 6, 12	75. *
Cooper Med. Coll., Calif.....	5, 9, 12	81.
Cooper Med. Coll., Calif.....	5, 9, 12	75.8*
Oakland Coll. Med. & Surg., Calif.....	5, 28, 12	85.6
Oakland Coll. Med. & Surg., Calif.....	5, 28, 12	84.4
Oakland Coll. Med. & Surg., Calif.....	5, 28, 12	79.
Oakland Coll. Med. & Surg., Calif.....	5, 28, 12	78.3*
Oakland Coll. Med. & Surg., Calif.....	9, 2, 12	77.5
Univ. of Calif., Med. Dept., Calif.....	6, 20, 12	90.
Univ. of Calif., Med. Dept., Calif.....	6, 1, 11	86.1
Univ. of Calif., Med. Dept., Calif.....	6, 1, 11	85.4
Univ. of Calif., Med. Dept., Calif.....	6, 20, 12	82.9
Univ. of Calif., Med. Dept., Calif.....	6, 20, 12	82.5
Univ. of Calif., Med. Dept., Calif.....	6, 20, 12	81.1
Albany Med. Coll., N. Y.....	5, 19, 08	84.9
Baltimore Med. Coll., Md.....	4, 17, 00	86.3 plus 5-91.3
Central Coll. of P. & S., Ind.....	—, —, 86	75.2 plus 10-85.2*
Chicago Med. Coll., Ill.....	3, 30, 80	75. plus 15-90. *
Coll. Phys. & Surgs., Chicago, Ill.....	—, —, 91	77.4 plus 10-87.4
Cornell Univ. Med. Coll., N. Y.....	6, 12, 07	86.4
Creighton Med. Coll., Nebr.....	4, 27, 12	79.9
Denver & Gross Coll. of Med., Colo.....	5, 18, 06	81.3
Detroit Coll. of Med., Mich.....	4, 19, 94	81. plus 5-86. *
Drake Univ., Med. Dept., Iowa.....	3, 17, 97	77.2 plus 5-82.2
Eclectic Med. Coll., Ohio.....	4, 19, 05	77.8
George Washington Univ., Dist. of Col.....	6, 5, 12	86.2
Harvard Med. School, Mass.....	6, 28, 11	89.3
Harvard Med. School, Mass.....	6, 20, 12	83.5
Harvard Med. School, Mass.....	6, 20, 12	80.1*
Medico-Chirurgical Coll. of Phila., Pa.....	5, —, 95	76.8 plus 5-81.8*
Miami Med. Coll., Ohio.....	3, 3, 73	66.7 plus 15-81.7*
New York Homeo. Coll. & Hosp., N. Y.....	5, —, 04	77.1
Northwestern Univ., Med. Sch., Ill.....	6, 19, 02	80.8 plus 5-85.8
Northwestern Univ., Med. Sch., Ill.....	6, 14, 11	81.5
Ohio Med. Univ., Ohio.....	5, 8, 06	80.2
Rush Med. Coll., Ill.....	3, 21, 12	85.8
Rush Med. Coll., Ill.....	6, 18, 02	81.2 plus 5-86.2
Rush Med. Coll., Ill.....	6, 16, 05	80.6
Rush Med. Coll., Ill.....	3, 31, 91	79. plus 10-89.
Rush Med. Coll., Ill.....	5, 26, 97	76.5 plus 5-81.5
Toronto Med. Coll., Canada.....	5, 9, 11	80.4
Univ. of City of New York.....	4, 7, 93	75.4 plus 5-80.4
Univ. of Colorado.....	6, 7, 11	80.
Univ. of Florence, Italy.....	2, 11, 04	76.5
Univ. of Genoa, Italy.....	6, 6, 05	75.
Univ. of Illinois, Coll. of Med.....	6, 6, 11	85.8
Univ. of Illinois, Coll. of Med.....	6, 4, 12	84.4
Univ. of Illinois, Coll. of Med.....	6, 4, 12	88.
Univ. of Illinois, Coll. of Med.....	6, 4, 12	85.8
Univ. of Illinois, Coll. of Med.....	6, 4, 12	84.8
Univ. Minn., Coll. Med. & Surg., Minn.....	6, 9, 10	81.9
Univ. Minn., Coll. Med. & Surg., Minn.....	6, 5, 02	77.4 plus 5-82.4
Univ. of Penn., Pa.....	6, 9, 97	82.6 plus 5-87.6
Univ. of Penn., Pa.....	6, 13, 00	91.1 plus 5-96.1
Univ. of Penn., Pa.....	6, 18, 02	83.3 plus 5-88.3
Univ. of the South, Tenn.....	12, 1, 01	72.8 plus 5-77.8
Univ. of Virginia.....	6, 14, 11	84.
Vanderbilt Univ., Med. Dept., Tenn.....	—, —, 08	86.7
Vanderbilt Univ., Med. Dept., Tenn.....	5, 21, 12	85.4
Vanderbilt Univ., Med. Dept., Tenn.....	3, 1, 91	81.5 plus 10-91.5
Western Reserve Univ., Med. Dept., Ohio.....	3, 2, 92	84.4 plus 10-94.4
Wisconsin Coll. of P. & S., Wis.....	5, 28, 03	75.8
Woman's Hospital Med. Coll. of Chi., Ill.....	4, 5, 87	77.8 plus 10-87.8

Failed.

Coll. of P. & S., Med. Dept., Univ. of So. Calif.....	6, 13, 12	65.7
Baltimore Univ. Sch. of Med., Md.....	—, —, 99	61.2 plus 5-66.2*
Barnes Med. Coll., Mo.....	5, 16, 11	67.2
Bennett Eclectic Coll. Med. & Surg., Ill.....	5, 8, 00	67.4 plus 5-72.4
Central Med. Coll., Mo.....	3, 1, 98	67.5 plus 5-72.5
Cleveland Univ. of Med. & Surg., O.....	3, 23, 97	69.2 plus 5-74.2
Coll. Phys. & Surgs., Ill.....	4, 21, 96	57.2 plus 5-62.2

Coll. Phys. & Surgs., Ill.....	4, 21, 96	69.1 plus 5-74.1
Eclectic Med. Inst., of Cinn., O.....	6, 3, 90	61.4 plus 10-71.4
Hahnemann Med. Coll., Ill.....	4, 13, 90	63.2 plus 10-73.2
Hahnemann Med. Coll., Ill.....	4, 26, 05	64.5
Lincoln Med. Coll., Nebr.....	8, 1, 06	69.2*
Louisville Nat. Med. Coll., Ky.....	5, 9, 89	42. plus 10-52. **
Missouri Med. Coll., Mo.....	3, 2, 81	41.4 plus 15-56.4
Omaha Med. Coll., Nebr.....	4, 4, 95	59.9 plus 5-64.9
Rush Med. Coll., Ill.....	5, 25, 99	70.7 plus 5-75.7
Rush Med. Coll., Ill.....	3, 25, 90	66. plus 10-76.
Rush Med. Coll., Ill.....	2, 20, 83	62.1 plus 10-72.1*
Tennessee Med. Coll., Tenn.....	5, 20, 08	56.6
Univ. Med. Coll., N. Y.....	3, 9, 86	61.4 plus 10-71.4
Univ. of Denver, Colo.....	5, —, 02	63.9 plus 5-68.9
Univ. of Louisville, Ky.....	6, 29, 05	70.5***
Univ. of Illinois, Coll. of Med., Ill.....	6, 4, 12	71.6
U. S. Grant Univ., Tenn.....	5, 1, 08	73.1
Willamette Univ., Med. Coll., Oreg.....	3, 28, 04	70.5

Osteopathy—Passed.

American Sch. of Osteopathy, Mo.....	5, 31, 10	77.7
American Sch. of Osteopathy, Mo.....	6, 3, 12	77.4
American Sch. of Osteopathy, Mo.....	6, 5, 11	77.3
American Sch. of Osteopathy, Mo.....	6, 22, 05	75.3*
L. A. Coll. of Osteopathy, Calif.....	1, 26, 12	82.9
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	80.3**
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	77.8
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	77.5
L. A. Coll. of Osteopathy, Calif.....	6, 2, 10	77.4
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	77.1.
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	76.6
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	76.5
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	76.2**
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	75.4*
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	75.2*
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	75. *
L. A. Coll. of Osteopathy, Calif.....	6, 2, 10	75.
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	75. *
Pacific Coll. of Osteopathy, Calif	6, 20, 12	88.5
Pacific Coll. of Osteopathy, Calif	6, 20, 12	75.5

Osteopathy—Failed.

American Sch. of Osteopathy, Mo.....	6, 5, 11	36.3
L. A. Coll. of Osteopathy, Calif.....	1, 26, 12	71.3*
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	71.
L. A. Coll. of Osteopathy, Calif.....	1, 26, 12	70.6
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	70.3
L. A. Coll. of Osteopathy, Calif.....	6, 1, 11	70.2*
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	68.9
L. A. Coll. of Osteopathy, Calif.....	1, 26, 11	67.2****
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	65.7
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	64.3
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	63.6
L. A. Coll. of Osteopathy, Calif.....	1, 27, 10	63.5****
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	62.8
L. A. Coll. of Osteopathy, Calif.....	6, 6, 12	59.5
Pacific Coll. of Osteopathy, Calif.....	6, 20, 12	71.
Pacific Coll. of Osteopathy, Calif.....	6, 15, 11	66.9**
Pacific Coll. of Osteopathy, Calif.....	6, 20, 12	66.7*
Pacific Coll. of Osteopathy, Calif.....	6, 20, 12	58.5
Philadelphia Coll. & Infirmary of Osteopathy, Pa.....	6, 22, 05	71.2*
S. S. Still Coll. of Osteopathy, Mo.....	1, 29, 03	73.7

* Taken before.

New Licentiatees—Medical Doctors.

A. W. Abbott, Albert Allen, S. M. Alter, J. H. Anderson, J. W. Bardill, F. J. Barnett, O. S. Bay, W. R. Boone, J. I. Boyer, O. W. Butler, J. M. G. Carter, F. H. Carter, E. S. Coburn, A. B. Cooke, C. C. Dickinson, A. B. Diepenbrock, W. W. Dill, J. B. Dodds, T. H. P. Duncan, E. V. Emery, C. C. Fitzgibbon, P. French, F. M. Gardner, E. J. Gay, C. M. Gouley, E. M. Hasty, F. L. Herrick, L. D. Hollingsworth, W. H. Holmes, K. Iseri, E. C. Jeancon, C. A. Jensen, A. N. Kerr, A. T. King, J. J. Klick, C. C. Landis, R. L. Larsen, W. E. Libby, E. M. Lundegaard, T. MacRae, J. H. Miller, E. D. Moffett, L. R. Moore, R. Moretti, C. H. Peppers, V. M. Pinkley, F. A. Phillips, R. Pollock, W. R. Reeves, C. G. Reum, D. N. Richards, B. Robbins, R. R. Ronan, A. H. Rosburg, J. M. Rose, F. M. Rossiter, E. H. Schneider, E. Scosseria, C. E. Shank, H. Shoemaker, G. M. Silverberg, J. H. Stark, W. F. Traughber, J. W. Truxaw, J. P. Vye, G. Walsh, G. H. Willcutt, F. C. Wiser, J. C. Yates.

New Licentiatees—Osteopaths.

G. M. Bales, R. F. Buchman, E. Ellison, C. E. Faddis, S. W. Hutchinson, W. W. Hutchinson, M. P. Jason, H. P. Jelsma, E. F. Jerrue, P. B. Magill, C. C. Moreland, L. M. Mosher, M. Mossman, E. Pethe-ram, R. W. Shultz, L. B. Smith, C. F. Thwaites, L. A. Weaver, C. H. West, F. W. West.

New Licentiatees—Honorably Discharged United States Surgeons.

Frampton Cove Brosius, Rush Med. Coll., Ill., Febr. 19, 1883; Wm. L. Whittington, Jefferson Med. Coll., Pa., April 4, 1888.

LANE MEDICAL LIBRARY.

Announcement of Hours.

The Lane Medical Library is open every day except Sunday from 8:30 a. m. to 5:30 p. m. and is open evenings from 7:30 to 9:30 except on Saturday. The library is open for the general use of the profession but it is anticipated that those who use the library often will contribute \$5 per year for the privilege of using the books in the library or \$10 per year for the privilege of taking the books home. Life memberships cost \$100.

WHEN IS A CURE NOT A CURE?

At a meeting of the French Society for Dermatology and Syphiligraphy, Gaucher told of a patient who got a cutaneous syphilid 50 years after a chancre. This was capped by Brocq, who observed a gumma in a man of 84; his chancre had been acquired at the age of 19, after which the syphilis had utterly vanished for 65 years.

EQUAL OPPORTUNITY AND THE SQUARE DEAL.

A negress, the wife of a white man, gave birth, in the Obstetric Clinic of the University of Munich, to twins, one of whom was black and the other white.

NEW AND NON-OFFICIAL REMEDIES.

Since March 1 the following articles have been accepted for inclusion with New and Nonofficial Remedies:

Capsules of Holadin Succinate of Soda and Bile Salts (Fairchild Bros. & Foster).

Capsules of Bile Salts Succinate of Soda and Phenolphthalein (Fairchild Bros. & Foster).

Capsules of Holadin, Bile Salts and Phenolphthalein (Fairchild Bros. & Foster).

Euscolpol (Riedel & Co.).

Ecodin (Riedel & Co.).

Iodo-Casein (H. K. Mulford Co.).

Iodo-Casein Tablets, 2½ grs. (H. K. Mulford Co.).

Iodo-Casein Tablets, 5 grs. (H. K. Mulford Co.).

Formicin (Kalle & Co.).

L-Suprarenin Synthetic Bitartrate Tablets (V. Koechl & Co.).

Colon Vaccine (Parke, Davis & Co.).

Gonorrheal Vaccine (Combined) (Parke, Davis & Co.).

Typhoid Vaccine (Prophylactic) (Parke, Davis & Co.).

Furunculosis Vaccine (Parke, Davis & Co.).

Combined Bacterial Vaccine (Parke, Davis & Co.).

Acne Vaccine (Parke, Davis & Co.).

Novocain Tablets "D" (Victor Koechl & Co.).

Novocain Tablets "F" (Victor Koechl & Co.).

Novocain Suprarenin Tablets "A" (Victor Koechl & Co.).

Novocain Suprarenin Tablets "B" (Victor Koechl & Co.).

Novocain Suprarenin Tablets "C" (Victor Koechl & Co.).

Novocain Suprarenin Tablets "E" (Victor Koechl & Co.).

Proferrin (H. K. Mulford Co.).

Proferrin Tablets, 1 gr. (H. K. Mulford Co.).

Proferrin Tablets, 2½ grs. (H. K. Mulford Co.).

Proferrin Tablets, 5 grs. (H. K. Mulford Co.).

Meningo-Bacterin (H. K. Mulford Co.).

Tyramine (Burroughs Wellcome & Co.).

Tuberculin-Rosenbach (Kalle & Co.).

Since publication of New and Nonofficial Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Novatophan is ethyl 6-methyl-2-phenyl-quinolin-

4-carboxylate, $\text{CH}_3\text{C}_6\text{H}_4\text{N}(\text{C}_6\text{H}_5)\text{COOC}_2\text{H}_5$, 6:2:4, the ethyl ester of paratophan. It is a crystalline, tasteless powder, insoluble in water. Its action is the same as that of atophan from which it differs only in being tasteless. It is also furnished in the form of Novatophan Tablets, 0.5 Gm. (7½ grains). Schering & Glatz, New York (Jour. A. M. A., Nov. 30, 1912, p. 1971).

Hexal is hexamethylenamin salicylsulphonic acid, $(\text{CH}_2)_6\text{N}_4\text{C}_6\text{H}_5(\text{OH})\text{COOH}\cdot\text{HSO}_3$. It is a white crystalline powder, soluble in water. It is a weak combination of hexamethylenamin and salicylsulphonic acid. It is claimed to have the action of hexamethylenamin combined with an anesthetic and astringent action on the inflamed mucous membranes of the biliary passages and urinary bladder, without having a deleterious effect on the bladder walls. Claimed to be useful in chronic inflammation of the bladder, posterior urethritis, etc. It is also furnished in the form of Hexal Tablets, 0.5 Gm. (7½ grains). Riedel & Co., New York (Jour. A. M. A., Nov. 30, 1912, p. 1971).

Glycotauro, Bile Salts, H. W. & Co., is concentrated ox bile, freed from bile pigments, each Gm. representing approximately 10 c.c. of fresh ox bile. It is a soft, semi-solid mass of bile-like odor and slightly bitter taste. Its actions and uses are those of bile salts. It is marketed in the form of Glycotauro Capsules, 5 gr. and Glycotauro Pills, 1 gr. Hynson, Westcott & Co., Baltimore, Md. (Jour. A. M. A., Dec. 7, 1912, p. 2066).

Mercurial Ointment, Improved, Mulford, is an ointment containing 50 per cent. of metallic mercury in an ointment base consisting of anhydrous wool-fat, petrolatum and suet, aromatized. Its actions and uses are the same as mercurial ointment, U. S. P., but it is devoid of the unpleasant odor of the official preparation and is said to be more readily absorbed. It is marketed in the form of Capsules Mercurial Ointment, Improved, Mulford, 30 grains, and Capsules Mercurial Ointment, Improved, Mulford, 60 grains. H. K. Mulford & Co., Philadelphia, Pa. (Jour. A. M. A., Dec. 7, 1912, p. 2066).

Cycloform, isobutyl para-aminobenzoate, is 2-methyl-propyl-4-amino-benzoate, $\text{C}_6\text{H}_4(\text{NH}_2)\text{COO}\cdot\text{CH}_2\text{CH}(\text{CH}_3)\cdot\text{CH}_3$. It is closely related to anesthesin (ethyl aminobenzoate) and propaesin (propyl aminobenzoate). It is an odorless, crystalline powder, soluble in olive oil and only slightly soluble in water. Said to act on wound surfaces or mucous membranes as a superficial and prolonged anesthetic and as a mild antiseptic. Used as a dusting powder, 5 to 20 per cent. ointments, in suppositories and internally in doses of 0.1 Gm. to 0.2 Gm. (1½ to 3 grains). Farbenfabriken of Elberfeld Co., New York (Jour. A. M. A., Dec. 14, 1912, p. 2150).

NEW MEMBERS.

Dwight, Wilder, San Francisco.
Utter, J. W., Anaheim, Cal.
Domann, Arthur H., Orange, Cal.
Von Werthern, J., San Francisco.
Osborn, H. B., Fillmore, Cal.
Homer, R. W., Ventura, Cal.
Craig, Thornton, Capay, Cal.
Gray, E. E., Marysville, Cal.
Gray, A. E., Marysville, Cal.
Seid, M. J., San Francisco.
Moore, C. B., San Francisco.
Hulen, Vard H., San Francisco.

DEATHS.

France, J. M., Perris, Cal.
Beach, Eliza J., Pasadena.
Paterson, Wm. A., Santa Clara.
Magee, F. J., Eugene City, Oregon (formerly Santa Clara, Cal.).
Reynolds, Geo. E., Hayward.

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Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

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EDITORIAL NOTES

MEDICAL DEFENSE NOTES.

Each month the JOURNAL will discuss some question relating to the Medical Defense work of the State Society and as these notes of information or discussion may be of the greatest interest to you at any time, you had better look for them. The most important point is, of course, for you to be sure that your dues are always paid up so that at no time are you delinquent; the Society will not defend any suit if the physician defendant was not paid up at the time the alleged malpractice occurred and also at the time when the suit is filed. The importance of paying your dues is of moment to you and not to the Society; the few dollars—the four dollars, to be exact—is a mere drop in the bucket to the Society; *but* the cost of defending a suit would mean a good many hundred dollars to you. Of course, you may never be sued; and then again, you may be sued to-morrow. And just remember, too, that the State Society Medical Defense is real defense; it is not like insurance where the company will get out of defending a suit if it can by any technicality do so. We took charge of just such a case in San Francisco. The doctor was insured but on a technicality the company refused to defend him. The Society looked out for him, a demurrer was introduced and the case thrown out of court. On January 31st a judgment for \$3,000 was given against a physician in Los Angeles not a member of the Society but who had paid for "insurance" and was, more or less, defended by the insurance company. A couple of months before that another physician in the same place, Los Angeles, also defended by an insurance company, had a judgment against him of \$2,500. Does that sort of "insurance" do you much good?

IMPORTANT SUIT WON.

On January 28th a most important suit against a member of the Society, Dr. C. A. Shepard, was begun in Los Angeles and lasted over a period of seven days' trial, resulting in a verdict for Dr. Shepard. The suit was for \$50,000 and it was alleged that he had fraudulently or untruthfully diagnosed a case of tuberculosis when in truth the patient did not have tuberculosis. We all know that it is of the greatest importance to the patient suffering from beginning tuberculosis to have the condition recognized early and long before the sputum is filled with bacilli. Had this most unjust suit been won by the plaintiff a number of similar suits would have been filed against physicians specializing in tuberculosis work and if we may judge by the results when such suits are defended by "insurance" companies, the plaintiff would have secured a verdict. Dr. Shepard writes: "I am proud to belong to a State Society that takes such good care of its members in such blackmail cases. The able defense put up by Mr. H. T. Morrow, the attorney for the Society, and the indefatigable efforts of the Secretary of the Los Angeles County Association, Dr. Geo. H. Kress, with the willing assistance of the members of the Society who left their offices and patients to testify on my behalf is certainly very gratifying." Is it better to keep your dues paid up and get this sort of defense or to let them lapse and depend on the chances of an "insurance" company's defense?

DID NOT UNDERSTAND.

A number of our members seem to have quite misunderstood the suggestion made in the JOURNAL a month or so ago to the effect that the medical defense rules be changed so that suits based on fracture cases would not be defended unless the member had had a consultant at the time he set the fracture, or a good reason for not having had one. Some members thought that was an attempt to get out of defending a good many suits. Not at all; that idea was never dreamed of. The idea back of the suggestion was that it would make it so much easier to win these suits if another physician was present when the patient was treated and could testify to the fact that the fracture had been properly set and dressed. So many suits are coming along that we must do everything that we possibly can to protect ourselves and it was with the idea of making our own protection just so much more secure, that the suggestion was made. There has never been the slightest intimation on the part of any member of the Council, of the Medical Defense Committee, of the Secretary or of our attorneys that we should take advantage of technicalities to get out of defending suits or make any rules that would tend to that. On the contrary, a number of suits have been defended wherein the Society was not absolutely and according to the letter, obliged to undertake the work. But we have felt that it was a moral obligation and that it would be the wish of the members to construe the whole matter most liberally. For instance, we defended a suit against a doctor brought by the father of his patient; the father was violent and

apparently insane and the doctor had him arrested for examination as to his sanity. He escaped and brought suit for damages against the doctor. He was not the doctor's patient and it was not "mal-practice" but the doctor had got into the trouble in the regular course of his professional work and we all agreed that the Society should defend him. The case was two days and a half in court and the doctor won. Nufsed? That member might have had insurance in every company in existence but he would not have been defended by any of them; he would have had to pay for his own defense if he had not been a member of the State Society. Worthwhile?

ALL'S WELL, THAT ENDS WELL.

About a year ago we were shocked to learn that the firm of Squibb had forsaken the principles which enabled its founder, Dr. E. R. Squibb, to build up the business which so long has enjoyed the complete confidence of the medical profession, and has gone into the proprietary medicine business. The proprietary which the firm was shown to be exploiting was not of the kind that most pharmaceutical houses feel justified or obliged to put out because "everybody's doing it," namely a shot-gun mixture ("ethical specialty") asserted to have been somebody's favorite prescription and provided with a therapeutic title. Instead, the Squibb proprietary belonged to the type which makes use of some drug whose action is well known and positive, to which some addition is made, which it was claimed vastly improves the previously used preparations of the medicament. As is customary in such cases, the preparation was marketed under vague and misleading claims as to composition, and provided with a misleading name. The preparation was called Thoremadin and on examination was found to be a sulphuric acid paste consisting of sulphuric acid, made into a paste with inert lead sulphate and "doctored up" with some radio-active earths, chiefly thorium sulphate. The nature of the preparation was brought out in a report by Dr. W. A. Pusey who, from experiments, became convinced that the preparation owed its virtues to sulphuric acid only. This was confirmed by the analysis made in the A. M. A. Laboratory (Jour. A. M. A., March 7, 1912, p. 716).

While so far the recited events are commonplace, the sequel is not. It shows that, though in new hands, the house of E. R. Squibb and Sons proposes to retain the confidence and respect of the medical profession.

Shortly after Pusey's article and the A. M. A. Chemical Laboratory analysis had appeared, the firm stated how it had come to be connected with the preparation—it was a story of a persuasive "promoter" and a few over-enthusiastic practitioners. At the same time the firm announced (Jour. A. M. A., April 13, 1912, p. 1135) that the product had been submitted to the Council on Pharmacy and Chemistry and that its sale would be discontinued, if the finding of Pusey—that radio-activity played no material part in its action—was confirmed by the Council.

The Council now has published its report (Jour. A. M. A., Feb. 8, 1913, p. 462) which is to the effect that, when tried side by side with a simple sulphuric acid mixture, experts were unable to distinguish any difference in action between these two preparations. Thoremadin thus having been shown to depend for its action on sulphuric acid, the claims to be unfounded and the name to be misleading, the house of Squibb announces that, in accordance with its agreement, it has now discontinued the sale of Thoremadin.

While the action of the firm is nothing more than what would be expected of a concern wishing to do an honest business, nevertheless, the temptations of proprietary exploitation nowadays are so great that the firm should be given credit for its action. Beyond this, however, the medical profession should feel satisfaction in the knowledge that there is at least one large pharmaceutical house which has in the past and no doubt will in the future, taboo the proprietary medicine business.

DISCOURAGING WORK.

The prosecution of illegal, unlicensed, practitioners of medicine is, in most places at least, a heart-breaking work. It is almost impossible to get a square deal in a police court; the evidence may be complete and without flaw, but for personal or political reasons the judge will discharge or suspend sentence or dismiss the case. In Los Angeles a lot of very good work has been done and good results have been obtained, but that was largely due to the tremendous energy of one man, Mr. Morrow, and to the fact that the city was so aggravatingly overrun with advertising quacks that the public—or a goodly portion of it—was disgusted and in sympathy. In Oakland some result has been obtained but only after great effort, at considerable expense and with many disheartening setbacks. As an illustration we publish, on another page, a portion of the record in the case against an unlicensed person who was convicted. It is illuminating. When a judge of a superior court will voice the sentiments which emanated from the court in this case, one may well say "what's the use!" and quit.

CHINESE MEDICINE.

The Pacific Coast members of the medical profession have had very definite notions concerning the absurdities of so-called Chinese medicine. Elsewhere in this issue is printed an article on the subject by a medical missionary, Dr. C. R. Roys of Wei-hsien, China, who discusses the subject from a wide and first hand knowledge. His paper on the subject is therefore of real value. Not the least of what Dr. Roys states is the point which he makes, judging from the newspaper advertisements and sign-board publicity of American patent medicines akin to those of the Chinese, that we of our own land are after all not so greatly superior to the heathen (?) upon whom we would look down with such scorn and pity.

MISPLACED CONFIDENCE.

A member of the Society writes us as follows and sends a copy of some advertising "literature": "I was under the impression that this firm (Lehn & Fink) pretended that it advertised its products only to the profession. Here is a pamphlet which has been mailed to a number of my patients." The title of the pamphlet is Rheumatism and Gout; their Symptoms, Causes, Prevention and Cure. The booklet follows the usual form of cheap "patent medicine" advertising and to read it one would feel quite sure that the only thing in the world that could cure him of rheumatism or gout is Piperazine Water. No, confiding member, your confidence was sadly placed; this firm, like a good many others, notably Frederick Stearns, would like to get all they can out of the doctor—and also get all they can out of the doctor's patients direct!

REPORTING COMMUNICABLE DISEASES.

At the conference of the various state health authorities with the Public Health Service held in Washington June 1, 1912, a resolution was adopted the purpose of which is to put into operation a co-operative plan "by which information of the current occurrence and geographic distribution of the communicable diseases would be available to the respective health authorities." The idea is a very good one and should be appreciated by all health officers in every part of the country. These reports go to the Surgeon General of the Public Health Service, are then compiled and put together and are issued in the weekly bulletin of the service which has a wide circulation; thus every health officer knows in the shortest possible time just what the conditions in regard to communicable diseases are in every other part of the country. "Whenever in any locality within a state there is an unusual outbreak or sudden increase in the number of cases of any of the following diseases, the Surgeon General should be notified by telegram (collect) followed by letter: Smallpox, typhoid fever, scarlet fever, epidemic poliomyelitis, diphtheria, epidemic cerebrospinal meningitis." All health officers in California should earnestly co-operate with the Public Health Service in this most important and valuable work.

OPHTHALMOLOGICAL CONGRESS.

The twelfth International Congress of Ophthalmology will be held in St. Petersburg August 10 to 15, 1914. We quote the following from the first official circular:

"Members who want to communicate reports to the Congress are obliged to send off the manuscript with the inscription fee to the central bureau in St. Petersburg, Ophthalmic Hospital, Mocho-waja 38 to the General Secretary Dr. Th. Germann not later than the 1st of February 1914. The reports must be written in one of the official languages of the Congress: English, French, German, Italian, Spanish or Russian; the extension of each work must not pass over 5 pages, the

usual length of reports on the preceding congresses. The manuscript must be written with the machine."

MEDICAL BILLS IN THE LEGISLATURE.

In discussing the various bills which have been introduced in the present legislature, and they are more numerous and more dangerous than at any previous session of the legislature in the history of the State, a few fundamental facts must be remembered.

A license to practice medicine or any mode of treating the sick or afflicted is not a piece of property given to an individual; it is a police license intended for the protection of the people and not for the benefit of the person to whom it is issued.

All such licenses, wherever issued, had their origin in the fact that uneducated and unqualified persons were desirous of making money out of sick people. At first all licenses were issued upon the presentation of a diploma from a medical school, which was originally considered to be evidence that the holder had studied medicine. It was soon found that a diploma meant nothing because unscrupulous persons formed "colleges" or "schools" which sold diplomas for sums ranging from \$50 up.

License based on examination was the next step; the examination given by the *licensing body* and not by the body issuing the diploma. The first state to base the issuance of a police license to practice medicine on an examination conducted by the licensing body, was New York, in which state the law went into effect in 1891.

Reciprocity, or the recognition by one state of a license issued in another state, first came about after several states had followed the example set by New York and issued licenses based on an actual examination. The principle of this reciprocity was that one state would recognize as satisfactory, the *examination* which had been given by another state; the actual license was secondary to a careful inspection of credentials and a satisfactory examination of the applicant, by the issuing state.

As it became harder for uneducated persons to obtain license to practice medicine, other systems or modes of treating the sick or afflicted were "discovered" and the followers of these systems asked for special licensing boards in their special systems, claiming that, as they did not wish to practice "medicine," but merely their special "mode," they should not be required to take the regular examination. But it was quite evident that, as a matter of fact, no matter what they said they *wanted* to practice, they all *actually practiced medicine*; or at least they all treated sick or afflicted persons in whatsoever way they saw fit.

The fundamental point of all laws regulating the requirements for a license for anyone to treat the sick or afflicted, is this:

Before being allowed by the state to treat a sick or afflicted person, the individual should be required to prove that he knows how the body is

made (anatomy), how it is supposed to perform its functions (physiology), and what accidents or material afflictions are liable to occur to it.

That would seem to be little enough and simple enough protection for the people; and bear in mind that the law is supposed to be only for the protection of the people. If it is for the protection of the people and is really going to *protect*, the law should provide some way of determining that the applicant actually possesses a minimum knowledge of the make-up, functions and afflictions of the human animal. Under present conditions, with a large number of physicians in the United States who bought diplomas or who obtained them after very little and very poor instruction and with another large number of followers of various "systems" or "schools" or modes of treatment which they claim to be not "medical" but something better, the only way that this minimum knowledge can be determined is by submitting the applicant to a proper examination either here or in some other state.

Special boards of examiners for special "modes" or "schools" should not be permitted, for all treat the sick or afflicted and so all should be required to show evidence of the same minimum knowledge. But those who cannot show the possession of this minimum knowledge fight the law and cry for special boards or lower standards and have all sorts of bills introduced into the legislature, not to protect the people but to permit them, the unqualified, to treat sick or afflicted persons.

Senate Bill 510, Gates, (same as A. B. 425, Ambrose) is a type of bills lowering standards. It provides for three boards of examiners; "a board of medical examiners, a board of drugless examiners and a board of registration of religious practitioners." The title of the act is "To regulate the practice of medicine, surgery and other systems or modes of treating the sick or afflicted," etc. Thus it is evident that *all who come under it are to do the same things*. But we find that those in the first class must comply with all present requirements and take an examination; those in the second class need have no preliminary education and but two years' study in some school of drugless healing and in addition the law licenses all osteopaths, chiropractors, naturopaths and any other breed of drugless healer—in fact anyone who has joined the "federation of liberal physicians, surgeons and healers" before July 1st, 1913! In the third class, practically no requirements are demanded.

Senate bills 652 and 653, Butler, (corresponding, in all essentials, to A. B. 355, Gelder) have for their special provision the issuing of a license to anyone to practice "a special branch of medicine and surgery." The applicant need have no medical training but he must make affidavit to having studied this "special branch" for at least 17 years. These bills are, apparently, intended to license Bohanon the cancer quack of Oakland. Gelder, who introduced the bill in the assembly, is Bohanon's lawyer.

Assembly bill 501, Gelder, creates a board of

eclectic examiners and does a number of other things; it is so drawn as to compel the eclectic board to issue a license to Bohanon and it would license, without examination, nearly every physician or osteopath who was licensed in any state or territory prior to 1906.

Senate bill 125, Gerdes, (corresponding to A. B. 304, Scott, and A. B. 347, Schmitt) would license in this state, without examination, anyone who was licensed in any state or territory prior to 1896. Prior to 1896 there were very few states with any requirements at all and diploma mills flourished, the holders of such purchased diplomas finding no difficulty in having them registered and a license issued in most of the states. All of this class could come to California and be licensed without examination and without even a scrutiny of the diploma, if any, on which the old license was issued. With such an amendment California might as well have no law at all, for only those who have a good chance of passing the examination and recent graduates, would have to take an examination.

Senate bill 430, Gates, (corresponds to A. B. 309, Woodley) creates a board of examiners of "chiropractic" and licenses, without examination, all who hold certificates from the "association of chiropractors" or the "federated chiropractors of California." It requires no preliminary education and in technical education this only: the applicant must have "to his or her credit a two years' course of study"—*no actual work* is required; merely *credit* for two years.

A. B. 731, Gates, provides an entirely new board adding two naturopaths to the board, doing away with the standard of preliminary education now provided for and going back to the plan of allowing the superintendent of public instruction or any deputy superintendent to issue a certificate of preliminary education on which the student can enter a medical school. Experience has shown us that this amounts to no requirement at all.

A. B. 732, Kuck, provides for a license for those practicing a special branch and is evidently another "Bohanon" amendment.

A. B. 820, Roberts, would allow anyone to practice nursing, massage, osteopathy, chiropractic or naturopathy without any license if they do not prescribe medicine or do surgery. At the present time no license is required for nursing or massage, so the bill would only have the result of allowing all these other people to practice medicine without a license.

A. B. 821, Roberts, has a good clause and a bad clause. It provides for reciprocity where the license is issued after an examination and where standards are no lower than those in California, but it also provides for the licensing of those practicing a special branch—another "Bohanon" amendment.

A. B. 932, Ryan, provides for a special board of examiners in mechanotherapy. The iniquitousness of special boards has already been pointed out.

A. B. 946, Bloodgood, makes some changes in wording of the section licensing army and navy

surgeons and allows those on active duty or relieved from duty to get a license without examination.

A. B. 961, Bloodgood, extends wide open reciprocity for everyone having a license anywhere, including osteopaths, and licenses here, without examination, any graduate of any school that is recognized by the licensing board in its home state. Under this act, no one would ever be examined in California again!

A. B. 1053, Gelder, a "Bohanon" amendment pure and simple; to license any one practicing a special branch.

A. B. 1054, Gelder, requires the state printer to print and offer for sale the Official Register and Directory of Physicians, the book that has been printed by the State Society for many years—at a loss! It would cost the state of California many thousands of dollars a year—for nothing!

A. B. 1274, Cram, prepared by the attorneys for the board and relates to the matter of filing a certificate in the county in which the physician practices.

A. B. 1275, Cram, also prepared by our attorneys, provides for raising the standards of preliminary education required so as to make osteopaths and all others have the same standard as now required of physicians.

A. B. 1276, Cram, also prepared by our attorneys, provides for a decent reciprocity on a basis of license issued after examination in some other state where the standards are not lower than those in California.

A. B. 1282, Shartel, provides for a special board to license practitioners of suggestive therapeutics!

A. B. 1483, Peairs, relates to advertising medical treatment and is a good bill, but the newspapers will kill it.

A. B. 1512, Ambrose, provides for two boards; a board of medical examiners and a board of examiners in drugless healing; it also lowers standards.

A. B. 1678, Southerland, provides for licensing without examination anyone holding a license in any state or territory prior to 1906 and would let is nearly every doctor in the country regardless of education or professional ability.

A. B. 1888, Johnstone, provides that physicians who have been in practice 15 years or more may, at the discretion of the board, be given a special examination, practical in its nature, and different from the examination given to others.

A. B. 1838, Gelder, is not an amendment but a perfectly new and wonderfully freaky law; it is so full of "jokers" that it is impossible to enumerate them all, but it would do all the destructive things that are provided for in Gelder's other separate bills, including the licensing of Bohanon.

It is to be noticed that every bill introduced, with the exception of the bills noted as prepared by our attorneys, has but one object in view—that is, *the admission to practice medicine in California of persons who could not obtain a license in this state under our present moderate requirements*. It is also to be noted that our present requirements are much lower than those of several other states.

There seems to be a mad desire on the part of

a large number of people to "take a whack" at the sick or afflicted and perhaps it would be a good thing to abolish the law entirely and let everyone treat anyone.

MEDICAL EDUCATION IN EUROPE.

The Carnegie Foundation's report upon Medical Education in the United States and Canada created much excitement, from east to west, because of the disclosures it made concerning the evil conditions of the many proprietary schools extant. Even the daily press became interested and occasionally it approved the report's attitude, but more commonly it came to the defense of some criticized school which had local favor. The Foundation's second volume on the subject of medical education treats of European conditions and its advent has created no stir. This is easily understood, for no local toes were trod upon. And yet this volume is the logical successor of the former and enhances that one's value, because of the great opportunity it gives for comparisons of objects and methods. It was, as is stated in the introduction, done at the request of American teachers of medicine in order that there might be an authoritative statement of European ideals, opportunities and efforts, for study by American schools for the direct purpose of bettering the latter. Therefore its publication should have been followed by careful comment by medical teachers themselves, and by the extra-academic, but no less real, medical teacher, the medical press.

The book demonstrates again the ability of the author, Abraham Flexner, to look at things with both microscopic and macroscopic vision, and his power to see detail does not impair his view of the subject as a whole but rather improves it, for his generalization is accurately based on the sum total of his itemization, and that makes it both interesting and valuable.

Opening with a resumé of the history of medicine for the past two hundred years it tells how medical education has followed and not led medical practice, and that only lately, when the science of medicine has gradually caught up to and then overtaken the art of medicine, has medical education been improved and to a certain extent standardized. This is perhaps less true of Germany than of other parts of the world, for it is only in Germany that medical education has been, from the beginning, a part of University work and as such it has partaken in the evolution of University activity. Elsewhere medical education has been in the hands of private individuals of varying ideals and abilities, and always it has been controlled by the treasurer's balance sheet of the end of a year, and nowhere has it been intelligently developed in accord with pedagogic principles and the full realization of the end to be attained.

Written with the standards and ideas of to-day in mind, the story of the gradual establishment of the scientific viewpoint is instructive, and that not only to the medical teacher, but to anyone interested in education at large. Therefore this

latter volume has an intrinsic value of its own from a purely pedagogic point of view.

Before beginning the discussion of medical education proper, the book contains a most important chapter—perhaps *the* most important chapter—on the basis of medical education, which is the preliminary training gotten in the secondary schools. Granting at once that there is not time in the years allotted to the study of medicine itself for the acquiring of all the knowledge essential to the scientific practice of the art of medicine, attention is at once turned to the secondary school to prepare the student for the successful study of medicine. Reviewing the conditions under which a man can enroll himself as a medical student in Germany, it is curious to be told that the same confusion exists there as elsewhere; for while the humanistic Gymnasium, with its sturdy adherence to the classics, has had lately two competitors in the Realgymnasium and the Higher Realschule, which eliminate one or both of the ancient languages, substituting for them modern languages and science, still the Gymnasium students can enter upon the study of medicine on the same legal terms as those of the other schools. So that at the very beginning a confusion of ideas if not of tongues is inevitable and presumably persistent. In England, in spite of there being no definite scheme, “a minimum preliminary standard gradually acquiring the force of law has been set up in indirect fashion,” while “in Scotland the situation is distinctly more orderly” a joint board controlling all work preliminary to university entrance. On the continent again, in France, the government controlled educational scheme demands that “a baccalaureate course of secondary instruction plus a certificate covering the study of physics, chemistry and biology issued by the faculty of science constitute the basis of medical education.” Whoever has had the interest to follow the efforts of those in this country who are responsible for medical education knows that the first obstacle to the establishment of an adequate course of study is the great variation in the preparation of the applicants, and attention was at once turned to the secondary school as the place where the needed improvement should begin. Mr. Flexner very properly treats the subject at the length which its importance merits; and in the same way, in a succeeding chapter, he emphasizes the need of the study of the basic sciences, physics, chemistry and biology, “for the medical sciences are experimental, not merely descriptive, and while even in their descriptive form they cannot be understood without a knowledge of the basic sciences, intelligent experimental study is out of the question to a student who lacks practical skill, brought over from the basic sciences.”

The teaching of medicine is described under the headings of the Medical Sciences; Clinical Instruction; Curriculum and Examination; all in Germany, France and Great Britain. The subjects are done fully and explicitly with ample discussion and free quotations from teachers in all three localities; and out of the discussion it is

possible to construct the ideal of the subject which has developed in the mind of the author. So that the book has, in a measure, at once answered its purpose, for it gives one man's opinion of a model medical course. It shows, too, the great advantage of having a national ideal, for in Germany not all of the universities have enough means and often a civic hospital is officered with university men and made thus to contribute to university work, or a civic hospital appointee is given a university appointment for his term of office, and so again university work is fostered, and, this without the anomalous condition witnessed in this country, where we see the state's university obliged to compete with private corporations for a proper share of the state's and cities' medical opportunities. The possession of an ideal and of university methods is shown to be the great attraction which German schools have over others for medical students, that and the other fact, that German medical teachers are primarily teachers, not primarily practitioners, and that, as teaching is their “major subject,” they are earnest and zealous—they are, in fact, teachers who teach, and to such teachers students will always flock. Moreover, the point is especially made that this German plan is not rigid, but is adequately elastic so that individual effort need never be lost, but has always opportunity to develop along lines of especial interest or ability. Covering the subject as exemplified at all the great schools in all three countries, the book may be a guide book for one choosing a school for some particular line of work, for in it he can find ample information about plant and officers and terms of study in didactic, clinical, laboratory or experimental ways.

Two chapters of other value follow these of technical consideration, one on the Financial Aspects of Medical Education, showing that here, too, money is the great common denominator and all effort must be reduced to terms of finance; and another chapter on Sects and Quacks. Practically Homeopathy is the only sect, and it is shown to be, in its diminishing numbers, a wholly negligible matter. The frank quack, however, is not a negligible quantity, certainly not in Germany, and the unparalleled development of pure quackery, which has in this orderly country to register itself as quackery, is astounding. Finally, the opportunities for postgraduate instruction are set forth and the medical education of women has a chapter, but it is chiefly historical and statistical, relating the conditions of study of the small handful of women medical students and practitioners in Europe.

Just as an introduction to a book is written last, so the introduction to this book may be referred to last, but it is by no means least. President Pritchett wrote it, and it forecasts all the points made in the body of the book, like the opening orchestral music of an opera. It does more than this, it puts some certain truths in unmistakable form, and especially shows that the medical profession is what the people make it, not what the physicians make it; and that the laity, in its utter indifference to the education and training of its family physician, and its easy tolerance of mediocrity and ignorance

and even its eager embrace of the faddist, the charlatan and the quack, not only says that it does not want the well educated and highly trained man, but makes it impossible often for a man to become well educated and highly trained. This introduction should be read by every father and mother in the country, and especially by the particular fathers whom the fathers and mothers of any state may send to that state's legislature, to set forth the laws which shall regulate the qualifications of the physicians who shall treat their sons and their daughters.

H. M. S.

THE EDUCATIONAL VALUE OF MOVING PICTURES.

Since 1910 it has not been an uncommon event at European scientific congresses to witness a display of moving pictures illustrative of physiological phenomena and the life of microscopic human parasites. In this country, with the exception of a few demonstrations made in the East, little attention has been paid to the subject by universities and medical societies.

Some years ago a Parisian surgeon earned the distinction of being the first, the writer believes, to employ moving pictures in medicine or surgery. This record of an operation on a world-famous subject was later shown to the public, against his will said the surgeon, who won a suit for damages against the film manufacturers after he had been severely criticized by his confreres. (It has never been proven that this remarkable surgeon was a silent partner of the manufacturers.) This same man showed various films at Edinburgh whose University conferred the LL. D. upon him in recognition of the value of his services.

T. W. Weisenburg of Philadelphia (J. A. M. A., Dec. 28, 1912) in an article entitled "Moving Picture Illustrations in Medicine," draws the attention of the profession to this advance of contemporary science as applied to medicine. All of his work has been with the nervous or insane, the various gaits, tics and convulsions lending themselves particularly well to motion photography. The importance of such cinematographic records for teaching purposes cannot be overestimated, and while Weisenburg naturally does not claim that film demonstrations are preferable to demonstrations of patients, he has found that the former will frequently interest students more than the latter. Of great value is the possibility of fine analyses of movements, e. g. of a rapidly occurring convulsion when the original is reproduced greatly enlarged and when the speed of the film can be regulated at will.

Quite recently, thanks to Dr. W. Tait, physicians and university students in the Bay Counties enjoyed the opportunity of witnessing the great educational possibilities in this field. The films were from the firm of Graumont and were made in various Parisian laboratories. Subjects demonstrated were, 1, the contractions of the frog's heart; 2, circulation in arteries, veins and capillaries of a rabbit; 3, study of the blood and blood dust under the ultra microscope; 4, a series of experiments on peristalsis by the method of perfusion; 5, various

forms of intestinal parasites; 6, study of spirochaetes; 7, demonstration of agglutination of spirilla in the blood of the chicken; 8, study of dental tartar under the dark field illumination; 9, study of water under the ultra microscope.

There is no doubt that in the future motion pictures are destined to play an important role in the education of the medical student just as they are to-day playing a tremendous role in the education of the public. The so-called "Nickelodeon," which as a result of the increase in the cost of living may soon be re-christened "Dimodeon," has certainly done a great deal in the teaching of history, of geography, or art, many of the lessons being easily swallowed and well assimilated in this gelatin-film coated form, whereas these same lessons might not have been at all digested if presented even on a series of so-called lantern slides.

The repetition by medical students of physiological experiments, necessitating the sacrifice of thousands of animals yearly, bitterly antagonizing the so-called antivivisectionists, will surely be rendered far less common so soon as the use of motion pictures becomes generalized.

The Edison Company has recently sent out a prospectus announcing the production of a small inexpensive moving picture machine, with small sized films, and recommended its adoption by universities and medical societies. The very serious objection to the adoption of this small machine is that it cannot be used for the demonstration of *standard sized films*, such as are being made by numerous manufacturers in this country and abroad. Any departure from a standard gauge would seem to be just as much a mistake with a moving picture apparatus as with a modern microscope. Several workers in this State are at present perfecting a portable machine, overcoming this objectionable feature, and with the marketing of a perfected machine in the near future we may expect to see a marked development in the use of moving pictures in medicine.

R. B.

ORIGINAL ARTICLES

SUCCESSFUL REMOVAL OF AN INTRADURAL TUMOR FROM THE SPINAL CANAL.*

By L. NEWMARK, M. D., and HARRY M. SHERMAN, M. D., San Francisco.

Medical part by L. Newmark, M. D.

When Mrs. R., aged 45 years, was first seen by me July 12, 1911, her right lower extremity was so weak that she walked with great difficulty, even when supported. Power in the left lower extremity was not appreciably reduced. On both sides an extensor Babinski reflex, patellar and ankle clonus could be elicited, and in both lower limbs and on the trunk sensibility was diminished. Urination, she said, was a trifle slow. She denied having pain in the back or anywhere else.

It was learned that the condition thus summarily described had developed *gradually*. In July, 1910, the patient first felt a burning in the left lower

* Read before the San Francisco County Medical Society, January, 1913.

extremity and she still felt "as if there were a large scratch there." From Dr. Clark Burnham and Dr. H. C. Moffitt, who had first examined her in September, 1910, the information was obtained that she had been weak in the legs for about ten months and that she had presented the Brown-Séquard combination of symptoms—motor disturbance in the right leg and sensory in the left.

Obviously there was a progressive obstacle to conduction in the spinal cord. As will be seen, there was tenderness to pressure in some of the spinous processes, but no indication of a tuberculous or other disease in the spinal column itself. Compression of the cord by a tumor seemed more probable. The absence of pain, however, although by no means an insuperable objection to this diagnosis, was nevertheless enough to make us pause a little, and in the laboratory my predecessors in the case had encountered another stumbling-block in the shape of a positive Wassermann reaction in the blood serum.

As I have set forth elsewhere,¹ a recent experience had made me disinclined to acquiesce implicitly in the decision of that test even after it had been corroborated by another positive reaction in the spinal fluid which I withdrew a few days later. At all events, whether syphilitic or not, the disease had resisted much and various specific treatment, and consequently a surgical operation was clearly indicated, so that the problem became one of localization of the lesion. Still, out of deference to the Wassermann test, specific treatment was continued during the time required for repeated examinations of the patient and for observing the development of the symptoms.

In the absence of root symptoms, the level of the lesion had to be inferred from the uppermost determinable extension of the anesthesia, due allowance being made for the common discrepancies between the level indicated by the anesthesia and the actual site of the lesion.

At the first examination on July 12 it was the perception of cold and heat that was most disturbed in the lower extremities, while sensibility to touch and pin pricks seemed but slightly affected, if at all; but two days later there was a decided hypalgnesia throughout both lower extremities, while the recognition of tactile and thermic stimuli was but little impaired. From the first examination on I was struck by the impairment of sensibility on the anterior surface of the right thigh being deeper than on the right leg or anywhere else. This local excess of anesthesia aroused misgivings as to the local nature of the disease and made us occasionally consider the possibility of some complication; but these doubts were not justified by the event.

Stroking the sole of the *left* foot caused a keener sensation than that of the right and the resulting reflex contraction was livelier on the left than on the right. The abdominal reflexes were absent now and subsequently.

When delicate touches with cotton wool were applied to the skin of the trunk, proceeding from above downward, on both days they were announced to be less keenly felt at the level of the eighth spinous process, and the line of transition

to comparative tactile dullness went straight around the body. And the eighth spinous process appeared distinctly tender to pressure, as did in a lesser degree the neighboring spines. But we were far from utilizing these first findings for the purpose of localization.

On July 18 lumbar puncture was performed. The pressure of the fluid was low. About 6 cc. was withdrawn. The sequel, no doubt an effect, of the puncture, was startling; for at the next visit it was found that the paresis of the right lower extremity had become an almost total paralysis, the only power persisting in it being that of slight extension of the leg when the thigh was passively flexed; and it was learned that the change had occurred on the day of the puncture. The eighth spinous process had become much more tender and the patient now complained so much of pain in the region of this dorsal process going through the body that she required morphine once a day. The sixth and seventh processes had also become tender, but the eighth was the worst.

On July 30 the sixth process was found to be the most tender to manipulation; two weeks later the fifth surpassed it in this respect and the fourth was also somewhat sensitive. When the patient inclined her head she said that she felt pain in the back at a point determined to be the fifth dorsal process, and from here the pain went through into the chest and followed the ribs around the thorax.

Soon after the lumbar puncture the right thigh drew up towards the abdomen and the patient was utterly unable to extend it; this flexion at the hip persisted for three weeks and then disappeared, leaving the whole limb flaccid and totally paralyzed, with the exaggerated reflexes as observed in the beginning. By the latter part of August the left lower extremity showed a very slight tendency to loss of power, weakness appearing in abduction of the left foot. Urination had become a little more difficult.

At this time there was more or less diminution of sensibility to tactile, cold, warm, and painful stimuli on both sides of the trunk and in both lower extremities. The highest level at which we could determine a change of sensibility of any kind was, in front, that of the junction of the manubrium of the sternum and the ensiform process, where a dullness in the perception of cold existed, and in the back that of the fifth dorsal spinous process to which a reduced sensibility to thermic and painful stimuli could be traced. On some days tactile perception also was found lessened as far upward as the fifth spinous process, on other days its lessening began at a lower level.

The hypesthesia in front corresponded to the sixth dorsal segment, that in the back to about the fourth, according to Seiffer's diagrams.

The fourth segment is opposite the base of the third dorsal process, but the common experience that tumors are sought too low gave reason for believing that the compression in this case might be even higher. On the other hand, from the behavior of the cerebrospinal fluid at the lumbar puncture it was inferred that there was a

damming up of the fluid above the point of compression and it was thought possible that the accumulated fluid above a tumor might cause a pressure upon the cord at a higher level than that of the tumor itself. It was to a tighter jamming of the tumor in consequence of the withdrawal of the fluid below it that we attributed the loss of the remaining power in the right lower extremity after the lumbar puncture. So, by limiting the opening of the spinal canal too strictly in accordance with reasoning upon the anesthesia there seemed to be some slight danger of looking too high for the tumor.² Furthermore the great tenderness of the fifth spinous process seemed to appeal for some consideration, although we bore in mind that other spinous processes had at various times held our attention. There was little likelihood of overlooking a tumor if the opening was extended from the fifth to the second process. Accordingly the operator was requested to begin his incision over the fifth spinous process, although the conviction was quite firm that the tumor would be found at a considerably higher level. It was found under the second dorsal arch, on the right side of the cord.³

The operation was performed on the 31st of August, 1911. On the next morning the patient announced that she had recovered some power of motion in the right ankle and on September 2 we convinced ourselves that she could move the right foot quite freely. A few days later it was found that the power to abduct the left foot had been restored. By September 9, the Babinski sign in the left foot had become modified inasmuch as it could now be provoked only from the heel, whereas irritation of other parts of the sole produced a flexor response; two weeks after the operation, by very careful manipulation a slight tendency to the extensor response could still be detected there, but in the right foot the Babinski sign remained fully developed and it persisted for a considerable time longer. Sensibility had improved very much in the left extremity within two weeks after the operation, and also in the right leg, but in a less degree; but on the anterior surface of the right thigh there was still a pronounced anesthesia on September 15. On October 20, however, a careful survey by Dr. Beerman disclosed normal sensibility everywhere.

In December, 1911, the patient had preserved a slight limp from the tendency of the right foot to turn inward, but there is now a complete restoration of all functions.

A few points deserve a little additional attention:

1. The effect of the lumbar puncture. The only mention of a similar occurrence known to me is in the report of a case of tumor compressing the cord by Raven,⁴ where it is related that "the next evening" after a lumbar puncture a sudden aggravation of the paralysis and anesthesia took place. One is reminded of the evil consequences of lumbar puncture in some cases of tumor of the brain and of the fatalities especially to be apprehended from it when the growth is situated in

the cerebellum. A general warning against so useful a procedure in cases of tumor affecting the cord would hardly be justified by this very limited unfavorable experience.

2. The upward movement of the spinal tenderness and the anesthesia. When the level of the compression is to be ascertained, in the absence of root symptoms, from the uppermost extent of the anesthesia it is well to bear such a tendency in mind, particularly in an early period of the disease, when the compression is slight; otherwise the tumor will be sought too low. In a case of Köster's⁵ there was at first tenderness of the eighth, ninth, and tenth dorsal processes, a month later of the fifth, and in a couple of months more it was most pronounced in the fourth; there was also a gradual ascent of the anesthesia; the tumor was found under the third dorsal process. Well-marked tenderness is suggestive and luring, when it is first observed, but in the course of the disease it is likely to shift and seems to be very misleading.

3. The result of the Wassermann reaction. Despite the overwhelming evidence in support of the value of this method for the detection of syphilis it does not seem superfluous to again advert to the errors into which we may occasionally be led by it. The publication of my experience in this case and in another one in the *Journal of the American Medical Association* immediately brought me a letter from Chicago, in which the writer related that in one case a positive Wassermann reaction had caused a disease of the tongue to be treated specifically until carcinomatous metastases appeared and deprived the patient of whatever chance a surgical operation might have offered, and that in another a cranial operation was allowed to proceed despite a positive reaction and revealed a glioma. Last year, induced by repeated reports of a positive reaction I persisted unduly with anti-syphilitic treatment of a boy who presented the symptoms of disease in the foot center of the brain, until finding my efforts unavailing I sent him to Dr. Harvey Cushing for operation and learned that the disease was an endothelioma. Some there are who consider the test sufficient warrant for assuming that in all these cases a latent syphilis was revealed co-existing with the other disease; others towering in the confidence of superior technic may impugn the competence of my collaborators. But it appears from recent German literature⁶ that there is experimental evidence as well as clinical testimony to show that when organs which contain an abundance of lipoids are destroyed by a non-syphilitic disease the Wassermann reaction may be positive. At all events, it does not seem to me to be presumptuous to advise that, when a tumor of the central nervous system is probable, confidence in the Wassermann method be tempered by remembrance of human fallibility in matters even less complicated.

Surgical part by H. M. Sherman.

My preoperative duties in the case of Mrs. R. consisted in carefully going over the details of

the history and his physical findings with Dr. Newmark. Concurrence with his opinion was inevitable and I took charge of the patient for the operation which was done on the 31st of August.

I followed, as nearly as I might, the technic of Cushing. This includes an incision directly upon the tips of the spinous processes. Each tip is then bitten off with a rongeur—the periosteum is next stripped from the side of each process, and incisions are made, from process to process, exactly in the mesial plane separating the muscular layers of the two sides. The processes are then cut off close to the laminae. The hemorrhage has been insignificant, and the necessity of hot sponge packing to check the bleeding from the spinal veins is wholly avoided. The spinal canal is then opened by a large Doyen burr which cuts out the cancellous tissue of the spinal arch at the point where the laminae and the spinous process meet, and then cuts the cortex of the laminae on their deeper side just as the tabula vitrea is cut in opening the skull. The rest of the laminae are then cleared of the periosteum on their superficial aspect and the bone is rongeured away from the periosteum on the deeper surface. An incision through the soft tissues which are left, made exactly in the midline, exposes the peridural fat and the dura mater.

I began, in the way, mentioned on the fifth dorsal vertebra, then I took the sixth and then the fourth. The exposed thecas could be felt as rather lax, surely not tense, and as there was nothing abnormal to be seen or felt, it was decided to take off the third lamina before opening the dura. There was no pulsation noticed through the dura and when it was opened the cerebro-spinal fluid was seen to be very scanty and the cord was not pulsating. A probe passed up and down the canal outside the dura encountered no obstacle. At Dr. Newmark's request I removed the lamina of the second vertebra and in extending the incision in the dura up across this space I encountered a little bony plaque 7 to 8 mm. long and 3 to 4 mm. wide. It was quite firmly adherent to the dura and I dissected it loose, thinking it represented a tumor. Under it I found a tumor mass, adherent to the dura and pressing on the cord. It was soft and tore easily, but I succeeded in pulling it out between the third and fourth nerve roots from its location in front of the cord. As it came out a gush of cerebrospinal fluid followed, evidencing the existence of exactly the conditions Dr. Newmark had supposed from the symptoms complex. To entirely separate the tumor I had to clip out a portion of the dura mater to which it was adherent and in closing the dura I was obliged to leave this gap open as I did another gap, a little cephalad, where was clipped out another bony plaque.

The wound was closed by tiers of sutures approximating the parts anatomically and there was normal healing.

Recovery was uneventful except for pain. This

was severe, at first steady and exhausting, then spasmodic, especially started by any movement; later it was erratic and irregular—once described as a twitching feeling all through the back and chest. Pain was the only complaint with which I had to deal. Dr. Newmark has recorded the restoration of function in the cord as shown by the recovery from the paralysis and the return of sensation. On the 29th of September, twenty-nine days after the operation, I had her stand up and walk, and from that time her recovery was rapid to completion.

In the case of a woman with a spinal cord tumor upon whom I operated, which was reported to this society by Dr. Herbert C. Moffitt the patient walked first upon the thirty-first day. Both of these women are now perfectly well in cord functions as in others.

Of the tumor Professor Ophuls reported that "Sections show tissue made up of large spindle cells, in which there are many calcified concentric granules," and he added the diagnosis "Psammoma of the dura mater."

In both of these cases the tumors have had relations to the dura mater, the former was stuck to the dura, but could be easily scraped off—the latter was more closely united and the dura had to be cut away to free the tumor. Pathologically this obeys the rule of intradural extra-medullary tumors.

In looking up some other case reports I found that George P. Muller of Philadelphia, a year ago, had quoted Starr's 1895 list of 123 cases, in twenty-two of which operation was done with a mortality of 50% and but six recoveries. Muller adds cases reported by Collins, Oppenheim, Bailey and Hunt and Woolsey, Moffitt and Sherman and himself; in all 116 cases, in which 76 operations were done with the recovery of 35 from the effects of the tumor. This is in keeping with Oppenheim's statement, also quoted by Muller, that recovery may be attained in about 50% of cases "Presenting a typical clinical picture of extra medullary growth."

Muller comments on the risk of the operation per se and quotes Krause's eight deaths in twenty-six operations.

Recently Coley has discussed the operative risks of laminectomy. It has come to me to do the operation a good many times and in all parts of the canal. I have taken off the sixth, fifth and fourth and third cervical laminae, and we could then look up into the skull and see the lower surface of the cerebellum. I have operated many times for pressure paraplegia in the dorsal region as well as for cord crushes in both cervical and dorsal and I have exposed the whole of the lumbar enlargement. One of my patients who was moribund, died on the operating table. All of the others have made good operative recoveries, though few have had the good fortune which has come to these two women with the intradural tumors. As my operative ability and technic is in no way extraordinary, I think I must class the operation as one in which the cutting can be

limited to connective tissues and in which therefore the operative risk itself is slight.

1 "The Occurrence of a Positive Wassermann Reaction in Two Cases of Non-Specific Tumor of the Central Nervous System." *Journal of the American Medical Association*, January 6, 1912.

2 See a statement by Nonne in the *Neurologisches Centralblatt*, 1908, p. 751.

3 According to the diagram of Dejerine and Thomas, the second arch corresponds to the fourth dorsal segment; according to Gowers' diagram, it corresponds to the third.

4 Raven. *Deutsche Zeitschrift für Nervenheilkunde*, Vol. 44, p. 386.

5 *Neurologisches Centralblatt*, 1907, p. 520.

6 Bittorf and Schidorsky, *Experimentelle Untersuchungen über das Wesen der Wassermann'schen Reaktion*, *Berliner Klinische Wochenschrift*, 1912, No. 42.

THE VARIATIONS OF THE CLINICAL PICTURE OF MENINGEAL AFFECTION IN PULMONARY TUBERCULOSIS IN ADULTS. WITH CASE REPORTS.

By J. L. POMEROY, M. D., Monrovia.

Whenever a case of pulmonary tuberculosis begins to show symptoms of meningeal irritation, the diagnosis of tubercular complication is generally predicted. No doubt this is as a rule correct; occasionally, however, one finds little at autopsy to verify such a diagnosis. The following case illustrates these statements and on that account should possess some interest.

The patient, G. V., male, age 30 years, had been suffering from pulmonary tuberculosis for three years, and at the time when first seen was in an "arrested" condition, doing a small amount of work, daily. One sister had died from tubercular meningitis, as a complication of pulmonary disease. No other facts of importance in the family history. The symptoms from which he demanded medical care came on suddenly. The patient was working in his garden when he began to suffer from intense frontal headache. This continued for several days when he began to vomit. At this time he presented the following: Patient was a large, well-formed, muscular man, slightly under weight, face flushed, pupils small, equal in size and sluggish in reaction to light and accommodation. There was no tenderness over the head, no rigidity of neck muscles, no history of syphilis, middle ear or sinus disease. Hearing and other senses normal. Mind perfectly clear. The knee jerks were absent and only a faint ankle jerk could be obtained. No changes in sensation. The pulse was slow (60 per minute), full and regular. Temperature 101° (10 a. m.). There was diffuse infiltration throughout entire right upper lobe with small cavity at apex. The lower lobe and middle lobe showed only slight thickening. There were few rales throughout these areas. The left upper showed signs of old fibroid condition with diminished resonance, and harsh breathing throughout with scattered fine rales. The right border of the heart was found about 1½ inches to the right of the sternum, apex normal, no murmurs. There was a slight amount of muco-purulent expectoration in which there were abundant tubercle bacilli. The abdomen was slightly retracted, no tenderness, stomach borders normal, no tumor or other pathological findings.

The headache was continuous, boring in character and located mostly in the frontal regions. The bowels were very constive. The patient retained but little food upon the stomach. The vomiting was almost "projectile" but not altogether so.

The patient was placed in a hospital under close

observation, the 3rd day of his illness. The temperature varied from 97.2° f. in a. m. to about 101° f. p. m., pulse remained from 60 to 70 per minute. The bowels persistently refused to move even after large doses of salts, calomel, etc. Recourse was had to high colon flushings three times daily. Finally after three minims of croton oil in divided doses evacuation was secured. Morphine and chloral in large doses were the only drugs which seemed to relieve the headache.

The patient gradually became more and more restless and needed careful watching. Nevertheless his mind remained clear until shortly before death. Lumbar puncture was performed on the fourth day of observation with the following results: The fluid flowed under considerable pressure, 15cc. was withdrawn; it was clear and limpid; albumen slightly increased, no polynuclear cells, but a slight increase in lymphocytes 16-20 per cu. mm., injection of fluid in peritoneal cavity of guinea pig gave positive results for tubercle bacilli. Ophthalmoscopic examination of eyes showed marked "choked disc" in both eyes.

After the lumbar puncture the patient's symptoms slightly improved; for two days he was able to take nourishment, and the headaches became less severe. Soon, however, they returned with greater intensity. Repetition of the puncture was refused. The neck muscles showed slight rigidity, the patient became unable to name objects presented to him, although he apparently understood what they were (paraphasia), was conscious of his surroundings. The knee jerks remained absent, the ankle jerk was slightly increased, and there was an uncertain Babinski. There was never any paralysis. Kernigs' sign became positive only a few days before death. His speech gradually became jumbled, although it was quite apparent that he knew what he wanted to say. The sphincter control was never lost or disturbed.

Urinalysis was entirely normal. The blood count showed only a moderate leukocytosis, the differential count was as follows: lymphocytes 25%, large mononuclears 5%, eosinophiles .5%, polynuclears 72.5. Total W. B. C. 10,000. No changes of note in the red cells. Hemoglobin Sahli 65%.

The patient gradually sank into coma, the lungs filled, became edematous, and death occurred nine days after onset of the symptoms. A brief abstract of the post mortem findings follows.

On removing the skull cap the dura was densely adherent, the veins much dilated and markedly congested. The brain seemed to be markedly tense. There were slight fine adhesions over the entire cortex, and the pia showed marked edema and in places over the cerebrum fine thickenings and opacities. Nowhere were tubercles to be found. On sectioning of the brain the right ventricle was much dilated with fluid, but no other gross pathological changes were noted. The convolutions were everywhere well formed, and well developed. Microscopical examination of sections taken from the membranes and various regions of the brain, showed only slight pial infiltration and perivascular infiltration and thickening. There were present definite acute inflammatory changes but no areas of necrosis were to be demonstrated.

There were dense adhesive changes between the parietal and visceral pleura over both apices. The right lung showed multiple foci of tubercular infiltration throughout the entire upper lobe. The lesions on the whole were fairly well encapsulated. Scattered foci also appeared through the middle and lower lobes. The left upper lobe was also infiltrated throughout with scattered areas of fairly normal lung tissue. The lower left lobe was relatively clear. The bronchial glands were partly caseous and softened. Nothing of note was observed in the heart, liver and remaining organs.

Autopsy summary. Chronic pulmonary tuber-

culosis, edema of brain, with mild degree of acute inflammatory changes in the pia and cortical substance.

The interesting features from a clinical standpoint are: the sudden acute onset, the absence of very definite neurological signs of meningitis, knee jerks absent, late appearance of a Kernig's, prolonged clearness of the mind, late appearance of stiffness in the neck, as well as the occurrence of choked disc, slow pulse and complete absence of convulsions, paralysis, twitchings, photophobia and other usual signs of meningeal irritations. The pathological signs while slight in nature are enough to warrant the diagnosis of a mild meningo-encephalitis, due to the tubercular toxemia, but without actual tubercle formation.

That this mode of death in pulmonary tuberculosis in adults, certainly is not rare stands to reason in that I have observed three other cases develop suddenly typical symptoms of meningitis. The mode of onset, however, is particularly striking in these cases; it came on almost like an "eclampsia." The patients were all doing well, and supposedly in no danger. In one instance in a young girl of 18 years, the onset was with "hysterical" fits with marked emotional disturbance, there was a phantom tumor in the abdomen, the patient seemed dazed and unable to speak. Rapidly the picture cleared and the classical symptoms of meningitis asserted themselves. In another case, following a trivial quarrel with his sweetheart, a young man of 23 began to complain of severe headache, in 24 hours he was comatose, and in three days died with all the symptoms of meningitis. Many cases of tubercular meningitis can be traced to chronic middle ear disease but this factor did not exist in these cases. In another instance a young man of 21 years of age with a pneumonic type of phthisis began to show numbness of the finger ends and twitching of the index and middle fingers; in four days he was dead, having rapidly developed symptoms of meningitis.

In other cases there is a more chronic course with gradual progress, and in which the diagnosis from tubercular tumors is almost impossible. I observed one such case which at autopsy showed a solitary tubercle in the left optic thalamus.

It has long been known that one may get symptoms of meningitis in acute infectious fevers without very definite anatomical changes in the brain or membranes. Quincke is responsible for the statement that certain infectious diseases such as typhus, scarlatina, pneumonia and many febrile diseases cause a high pressure in the spinal fluid and sometimes increase the cellular content. In many cases the only theory available is the one of chemical toxin irritation. The French school have long held that the presence of lymphocytes in increased amounts in the spinal fluid indicates always meningeal irritation. Syphilis in any of its stages may cause spinal lymphocytosis and it is commonly found in paresis and locomotor ataxia. Noguchi's reaction should aid in differentiation

between the syphilitic and non-syphilitic causes in explaining spinal lymphocytosis.

In a review of the literature up to 1904 Jessen quotes Schultze who made many observations showing that cases clinically showing symptoms of meningitis, anatomically gave no clue to their origin. Armand-Delille also claimed that the tubercular toxin could cause meningeal symptoms. Krannhols observed similar cases. In adults Kamboseff found tuberculous meningitis in only 2% of the cases. Kraemer in 477 tuberculosis cases found pial tuberculosis in 9.2%; in these, however, only one occurred in connection with phthisis. Therefore, Jessen states that tubercular meningitis develops very seldom in adults.

In a series of over 150 lumbar punctures done from a diagnostic standpoint, upon various nervous diseases reported in the *Journal of Nervous and Mental Diseases*, May, 1907, I observed several cases which showed an increase in lymphocytes in the spinal fluid, while at autopsy only very slight inflammatory changes were to be found microscopically. There is a point here to be remembered; if a patient who presents himself with symptoms of supposedly meningeal or cerebral origin has previously had syphilis, this alone will account for the lymphocytosis. Therefore from the presence of lymphocytosis alone we must not make a diagnosis of meningitis.

The exact source of infection of the meninges or brain in pulmonary tuberculosis seems to be uncertain. It may originate from the bronchial glands, but also direct from the lungs. Kraemer states that it may originate from the bronchial glands, joint tuberculosis, tubercular cervical glands, and also lung tuberculosis. Jessen states that tuberculous infection of the pia was first described by Von Dance in 1829. Buhl in 1859, before the discovery of the tubercle bacillus, thought that meningitis originated by the entrance into the blood of tubercular material. From the recent work we now know that tubercle bacilli frequently are to be found in the blood of pulmonary cases. The brain tissue in adults, however, seems to possess some inherent chemical resistance to invasion, as it seems to be but rarely attacked. Possibly the slow circulation, the presence of large amounts of blood, and the peculiar chemical consistency of brain tissue, containing as it does lecithin, etc., are directly destructive to tubercle bacilli. Experimental researches in part support this idea. But we can not explain the difference in the susceptibility of the meninges in adults and children, except possibly on the grounds of developmental differences.

Kraemer in his material twice observed tuberculosis of the pulmonary veins. Oppenheim held that the infectious material gains entrance to the circulation through the pulmonary veins. Possibly the infection results from an infectious embolus. Strüpel states that the bacilli may travel through the lymph channels of the nerves to the arachnoidal sac of the cord and from there to the base of the brain. Leube felt satisfied that in one such case the mechanism of infection was upon

this basis. Peron concluded from his researches that the spread of the infection came through the cerebrospinal fluid. Possibly the bacilli passed from the lymph channels in the brain and tissues directly into the cerebrospinal fluid. The frequent presence of tubercle bacilli certainly show that they are present in such conditions but whether they pass into the fluid primarily to the formation of a localized lesion, or the lesion arises on the basis of their presence so far as one knows has not been solved.

Armand-Delille produced experimentally by ether and chloroform extracts of tuberculous material symptoms from the central nervous system, but only in a mechanical way hyperemia and leukocytic infiltration of the meninges. He never found a primary encephalitis, but only secondary symptoms from infiltration of the meninges.

O. Fischer analyzed 260 undoubted cases of tuberculous meningitis from the Leipsic Clinic. Fifty-seven cases occurred in patients over forty years of age; from forty to fifty years, eighteen cases. Most of the cases were of the basilar type, only in one-eighth of the cases was there inflammation of the convexity. Urine retention was a common symptom; rigidity of the neck muscles was common but not constant. The average duration was five to fourteen days, the longest seven months. None showed healing. Twenty-five lumbar punctures showed twenty-two times a plain lymphocytosis, only once were tubercle bacilli found. Two cases in the report are of unusual interest. A man in the last stages of heart disease was brought to the hospital "in extremis" and died of heart failure. There were no meningeal symptoms but necropsy showed a severe tuberculous meningitis. The other case was that of a man of forty-four years, with all the text-book symptoms of the disease including the "hydrocephalic cry"; at the necropsy there was advanced pulmonary and intestinal tuberculosis but no lesion whatever in the brain.

The disease seldom localizes itself upon the cerebral pia. Kraemer in forty-four cases found this condition only once. Seitz in fifty cases only once, Huebner in twenty-nine cases only once found meningitis of the cerebral area. One frequently finds a secondary infection of the brain substance and also of the pia spinalis. The inflammation of the pia spinalis is commonly found in connection with basilar meningitis.

Tubercle in the cerebral pia may follow direct trauma to the skull. Buol and Paulus describe such a case. A young man of twenty-eight who had recovered from an apical infiltration and had remained well for a year and a half had a fall in which he struck his head severely. In fourteen days he died of tubercular meningitis. At autopsy two small tuberculous masses were found in the central area of the convexity of the brain which were old and apparently healed, from these spread over the pia, generalized inflammation.

Vossensky reports a somewhat similar case in which operative treatment was attempted. A man of forty-five, some five years after a blow on

the head, developed convulsions in the limbs on the left side, coming on at variable intervals. For four months previous, these crises occurred three times a day, and the muscles of the left wrist had been paralyzed for a month. Acute parietal headache had persisted for a month and difficulty in articulation for three days. Babinski was absent, there were no disorders in sensation, no disturbance of the pupils, though there was optic neuritis. After a few days the patient became comatose, with slow pulse, vomiting and dilatation of the pupils. Operation was performed over the right motor area, the dura was thickened and yellowish, adherent to the brain, and palpation disclosed a hard nodule. After incision of the cortex a firm yellowish mass two by one and three-fifths inches was removed. This was partly in the cortex and partly in the white matter. Death occurred the next day. Necropsy showed the growth to have been completely removed, there was no other in the body. Examination showed it to be a tuberculoma. Operations on such growths are still uncommon. Duret was able to collect but twenty-two on the cerebrum with nineteen cures and eleven on the cerebellum with nine deaths.

Psychic trauma or psychic excitement from varying causation seems also to be a predisposing factor in the production of tubercular meningitis. Continual worry, fatigue, the nervous constitution are mentioned by some authorities as predisposing causes. Zappert reports cases of hemiplegia, of tuberculous origin, due to a lesion in the internal capsule or over the convexity. Warfvinge reports cases of miliary tuberculosis with tubercles spread over the entire convexity, with marked exudate and pial thickening. The symptoms began with choreiform movements of right arm, leg and face, later the left side shows irritative symptoms.

Weintraud describes a case of meningitis of the convexity of the brain in a man of thirty-three with pulmonary tuberculosis. In this case he found also an endarteritis obliterans and thrombosis of the smaller vessels of the pia of tubercular origin.

Distinct motor symptoms may result from meningeal thickening over the motor centers. Matthes describes a case of meningitis in tuberculosis of the lungs, with paralysis of the hypoglossal nerve; at autopsy only meningeal thickening over the cortex, while the nucleus and nerve trunk were normal.

In general the prognosis of these cases is bad. Seldom does recovery ensue. Jirasek reports an instance of recovery, but such cases bring up the question that the disturbance may have been only toxic in origin. I have seen recovery ensue in the following case:

A young girl of 18 with severe destruction of the upper left lobe of the lung, developed rigidity of the neck muscles, weakness in the left arm and marked atrophy resulted in the muscles of the left forearm. The notes of the case are as follows:

Patient has been febrile (100°) daily and in bed some time. First began to suffer from rheumatic pains about the hips, both sciatic nerves tender to pressure, no loss of power in legs. Has

suffered from stiffness of the neck for several months; more on the left side. Would go away at times during the day. Some pain through back of head and neck at night. Would often be unable to turn head freely. Right wrist began to feel weak recently. Complaints of soreness on left side. Felt a peculiar dullness or stiffness in the flexor group of muscles in the left forearm. Shoulder movements free and painless. Slight numbness in fingers and for days at a time lost almost completely muscular power in the left arm. At times she could not move the arm at all. The sensation to pain as tested by pin pricks was decreased on the ulnar side of the left arm up to the elbow but not on the radial side. Sensation was very dull on the little finger, and somewhat on the posterior surfaces of all the fingers, particularly the tips. Nodding of the head caused pain on the right side at the base of the skull. The muscles of the arm were slightly spastic particularly on forced movements. The reflexes were exaggerated. Neck muscles rigid on palpation particularly the left, muscles atrophic in left forearm, particularly the flexor group and also the ulnar, no joint disease anywhere. No tenderness over the vertebrae. Pupils unequal, left larger than right. Lung condition: marked destruction of left upper lobe; left border of heart beyond anterior auxiliary line, right lung fairly free.

It is interesting to note that shortly after these symptoms manifested themselves the patient developed tuberculosis of the left ankle joint, which was additional evidence of the wide dissemination of the disease. In spite of the severe lung condition the bone disease completely recovered and all the symptoms of the meningeal infection subsided. Tuberculin used throughout the course of the disease.

There is some question in this case whether the extreme destruction of the apex did not bring about a mechanical effect upon the left brachial plexus, but the slight symptoms on the right side are evidence against this theory.

This case illustrates that recovery may ensue in mild meningeal tuberculosis and unquestionably the use of tuberculin in this case was of great assistance. Dr. C. C. Browning has in an unpublished report described a marked case of basilar meningitis in a young girl treated with tuberculin with good recovery. This case was exhibited before the County Medical Society of Los Angeles.

P. Foa reports an instance of healing of a tubercle in the cerebellum. In a child which had died of parenchymatous nephritis, an old healed focus was found in the cerebellum. About a year previous symptoms of meningeal irritation had existed but passed away.

Janssen reports a case with meningeal symptoms which disappeared and the patient died of pulmonary tuberculosis. At autopsy several small tubercles were found in the meninges.

Freyhan reports a case of meningitis, which recovered in which tubercle bacilli were found. The acute type of basilar tuberculosis may terminate in a more chronic form. In fact it is a question in my mind whether the so-called cures are not merely the transformation into a latent condition. Clinically some signs will still persist. These cases may die at any time of an acute exacerbation of the disease. The tuberculous deposits become fibroid and encapsulated and give rise to Jacksonian epilepsy, contractures, asphasia,

etc. Such a case is described by Anglade and Choevreaux. In a pulmonary case symptoms of epilepsy developed. After a number of years the patient died in status epilepticus. At autopsy there was besides a left sided lung tuberculosis, thickening of the pia, with normal cortex. In the area of the pial involvement, the vessels in the cortex were thickened, the cortical cells atrophic with necrotic patches and in places glial overgrowth. A solitary tubercle with bacilli was found over the right hemisphere in the meninges.

Von Dupre, Hauser and Sebillieu describe cases of chronic spinal meningitis, which showed at times acute exacerbations.

Spinal tuberculosis is even more rarely found than basilar. It is not unlikely that they are more often associated than we think only we do not make the necessary search. Isolated spinal meningitis of tubercular origin, however, has been described. Hoche reports a case of a twenty-six-year-old girl with both upper lobes infiltrated, the nervous system apparently normal, developed nightly delirium, opisthotonus, somnolence, weakness of the lower extremities and of the sphincters. Anatomically was found spinal tuberculosis of the meninges, and degeneration of the column of Goll and the pyramidal tract in the cord. Dinkler describes a case of motor paraplegia, disturbance of sensibility in the lower extremities and sphincter disturbance. Pressure symptoms also existed. The autopsy showed fungous outgrowth from the first and second dorsal vertebrae with compression of the cord and secondary myelitis and tuberculosis of the meninges.

Dupre, Hauser and Sebillieu describe a case with lung tuberculosis and pleurisy developed weakness of the legs with increased reflexes, positive Babinski reflex and stupor. Later delirium developed, disappearance of the reflexes, emaciation of the extremities, total anesthesia up to the navel; bed sores, and death in coma. The cord was affected from the sixth to tenth dorsal region, fibrous pachymeningitis (no tubercle bacilli), leptomeningitis thickening of pial vessels, and in the apendyma an old fibrous tubercle. In the gray substance, no changes. In the white substance, myelitis sixth to ninth dorsal segments. Meningeal thickening to sixth cervical segment. No caries of the vertebrae. In the Sylvian fissure of the brain on both sides, was found small old tubercle and meningo-encephalitis. The author held that the latter only caused psychic disturbance, and that the tuberculosis of the lungs and central nervous system existed for a long time and death came from the secondary infection in the spinal meningitis.

Other cases of mixed cerebral and spinal tuberculosis are reported by Von Londe and Brouardel.

Von Cernville and Stilling report a case which showed marked degeneration of the column of Clark. In general one can say that tubercular meningitis spinalis may cause degenerative changes in the spinal cord also meningo-myelitis. Other etiological factors which seem to play a part are alcohol and syphilis.

It has long been known that nervous symptoms may arise in the course of familiar infectious diseases, such as typhoid fever without apparent anatomic changes in the meninges or in the brain. Definite meningitis and encephalitis also may be found after death without having given rise to any definite symptoms or no symptoms differing from the above group. The *Journal*, A. M. A., in an editorial recently calls attention to the work of Oseki in regard to these cases. Oseki found that in some instances, diagnosed as meningitis clinically, the post-mortem examination showed no gross changes except perhaps a moderate amount of edema and occasionally a very slight opacity of the membranes. On microscopic examination, however, there were found definite acute inflammatory changes with leukocytic and lymphocytic infiltration of the meninges and in the brain substance. The picture was that of an acute meningo-encephalitis, and as the process in the brain substance was most marked next to the meninges it seems reasonable to assume that the course of the process spread downward from the meninges. In another group of cases, however, the changes were confined entirely to the brain substance, showing that in encephalitis the meningeal symptoms may predominate as previously described by others. Oseki encountered cases of pneumonia in which meningitis and encephalitis were found to be present after death but of which there had been no symptoms whatever during life. In only one case could the changes be recognized by the naked eye.

Therefore it is very necessary to examine the cortex and meninges microscopically in order to detect the changes such as may exist. No doubt many of the cases of so-called "meningism" occurring in tuberculosis can be ascribed to the fact that in the absence of gross changes no microscopical study was made.

J. Finel and P. Gastinel in the April *Revue de Medicine*, review the autopsy findings in regard to a number of cases of meningeal involvement in the tuberculous. Extremely variable lesions from an acute inflammatory infiltration to diffuse sclerosis with fibrous nodules and cystic formations may be found. On the other hand the meninges may display a remarkable tolerance to the tubercle bacilli and the lesions run an entirely latent course. In other cases the meninges may be extremely intolerant and react with intense symptoms to minimal or transient injury. The phases of alternate latency and intolerance can only be explained on the basis of vaccination according to immunity theories.

Tuberculosis of the meninges in adults may, therefore, come on apparently with great rapidity and terminate within a few days. On the basis of these studies the suddenness of the onset in these cases may be explained in that there occurs a lighting up of an old focus, partially healed or latent. From a pathological standpoint this has been demonstrated in a few cases. The absence of definite anatomical findings in cases showing meningeal symptoms can be explained partly on the basis of insufficient microscopical examination

of the brain and its coverings. In some well studied cases a mild meningo-encephalitis, without actual tubercle formation explains the symptoms. These changes, however, may occur without symptoms. Furthermore, actual tubercle formation in the meninges or brain substance may exist and give no hint of their presence. It is to be urged that tubercular patients presenting mental or nervous symptoms be carefully studied, and the pathologic-anatomic data secured.

Unquestionably, clinical healing of slight foci in the meninges or brain occasionally occurs. Tuberculin treatment should not be withheld in these cases, but the dosage should be much smaller than for the pulmonary disease. The anatomical evidence also demonstrated in the few cases accessible to study, that healing will take place. How long such lesions may remain "latent" and eventually cause death one can only judge in the light of similar conditions elsewhere.

From a predisposing standpoint, trauma to the skull seems important. Also psychic trauma certainly plays a factor.

The symptoms in these cases are often uncertain and present varying pictures. From the standpoint of the rather uncommon termination of pulmonary tuberculosis, the study of the varying causation, clinical picture and pathological anatomy of tubercular meningitis in adults holds forth considerable interest.

BIBLIOGRAPHY.

- Archangelskij, W.—Zur Frage der Heilungschancen bei tuberkulöser Meningitis. *Med. Revue (russ.)* 73, 140, 1910. Cf. Ref. 359, Heft 3.
- Anglade et Choereaux—Über eine klinische und pathologisch-anatomische Form von Meningoencephalitis. *Soc. de neurologie*, 15. I. 03. Refer. *Neur. Zentr.* 1903.
- Amand-Delille—Réaction des meninges à certains poisons du bacille tuberculeux humain. *Arch. de méd. expér.*, 1902.
- Bühl—Quoted by Jessen, p. 48 cf.
- Buol and Paulus—Meningitis tuberculosa nach Kopf-trauma. *Corresp. für die Schweizer Ärzte* 1896.
- Dinkler—Über die anatomischen Grundlagen einer anscheinend falschen Segmentdiagnose bei tuberkulöser Kompressionsmyelitis. *Deutsche Zeitschr. für Nervenheilkunde* XI.
- Fischer, O.—Tuberculous Meningitis. *Münch. Med. Woch.*, 1910, No. 20.
- Freyhan—Ein Fall von Meningitis tuberculosa mit Ausgang in Heilung. *Deutsche med. Wochenschr.*, 1894.
- Oseki—Betr. z. path. anat. u. z. allg. Path. (Ziegler's), 1912, IV, 538.
- Oppenheim—Lehrbuch der Nervenkrankheiten, 1905.
- Schultze, F. D.—*Archiv. f. Klin. Med.* XXV, 297.
- v. Strümpell—Zur Kenntnis der multiplen degenerativen Neuritis. *Archiv. für Psych.*, Bd. XIV.
- Peron—Quoted by Jessen, p. 48.
- Pomeroy, J. L.—Diagnostic Value of Lumbar Puncture. *Jour. Nerv. and Mental Dis.*, May, 1907.
- Von Dupre, Hauser et Sebillau—Meningo-myelitis tuberculose a lesions discretas. *Paraplegie aigue. Rev. neurologique*, 1903. Refer. *Neurol. Zentralblatt* 1904.
- Von Dance—Memoire sur l'hydrocephalie aigue observee chez l'adulte. *Arch. gener. de medicine* 1829, 1831.
- Von Londe et Brouardel—Note sur un cas de meningo-myelitis tuberculose. *Arch. de med. expér.*, 1895.
- Von Cereville and Stilling—Quoted by Jessen, p. 52.
- Vossnessensky, V. P.—Tuberculosis of the Brain. *Jour. de Chirurgie*, Sept., 1910.
- Zumsteg, Rekurrenslähmung bei Bronchialtuberkulose. *Charite-Annalen* XXXIII, 1909.
- Zappert—Die Hemiplegie bei der tuberkulösen Meningitis. *Jahrb. f. Kinderheilk.*, Bd. XL.
- Warvinge—Fall von Hirntuberkulose mit choreaartigen Konvulsionen. *Svensk lakare sällskapets förhandlingar*, 1889.
- Weintraud—Über die Pathogenese der Herdsymptome bei tuberkulöser Meningitis. *Zeitschr. f. klin. Med.*, Bd. XXVI.
- P. Foa—Heilung eines Kleinhirntuberkels, *Riforma med.* 1911, Nr. I.
- J. Finel and P. Gastinel—Les états meninges des tuberculeux. *Revue de med. Paris*, April, 1912, No. 4.
- Gierlich—Tuberkulose im Zentralnervensystem. *Zeitschr. f. ärztl. Fortbild.* Nr. 19, 1910.

- Heubner—Hirnhäute. Eulenburs Realenzyklopadie 1886.
 Hoche—Zur Lehre von der Tuberkulose des Zentralnervensystems. Arch. f. Psych. XIX.
 Jessen—Lungenschwindsucht und Nervensystem. Jena, 1905.
 Jirásek—Ein Fall Con zweimal geheilter Meningitis tuberkulosa bei demselben Individuum. Ref. Zentralbl. f. inn. Med. 1904.
 Janssen—Ein Fall von mening. Tuberkulose mit Ausgang in Heilung. Deutsche med. Wochenschr. 1896.
 Kambosoff—Klinisch statistische untersuchung über Lungenschwindsucht. Inaug. Dissert. Zürich, 1894.
 Kraemer—Die Meningitis tuberkulosa adutorum. Inaug. Dissert., Zürich, 1894.
 Leube—Quoted by Jessen, p. 48 cf.
 Matthes—Über ein seltenes (kortikales) Herdsymptom bei Meningitis tuberkulosa. Münchner med. Wochenschr. 1892.

TWO CASES OF APPENDICITIS WITH CERTAIN POST-OPERATIVE COMPLICATIONS.*

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The two cases that I have to report are both cases of acute appendicitis with rupture. Because of the not unusual complications that followed operation and the results obtained by measures instituted for their relief I consider them to be cases of special interest.

Case No. 1. The patient, a Japanese, 26 years of age, was first seen in consultation with Dr. von Adelung at time of entrance into hospital, August 1st, 1911. He complained of intense abdominal pain that had its onset three days prior. The pain was most severe in the lower right quadrant and was continuous. There had been no vomiting. There was marked tenderness on pressure over and about McBurney's point. Right rectus rigidity was very marked and on palpation a sense of tumefaction about the point of greatest tenderness could be elicited. Temperature was 100.6°; pulse 88; leukocytosis 24,200, 86% being polymorphonuclear.

The patient gave a history of obstinate constipation prior to his illness; appetite was always good and he said he never had suffered from any digestive disturbances. However, his general health had been poor for some time.

A diagnosis of acute appendicitis was made, and because of the rapidly increasing severity of the symptoms, the large area of marked tenderness on pressure, the tumefaction and high leukocyte count it was thought probable that rupture had taken place.

Immediate operation was advised and performed. Under ether anesthesia a Deaver incision was made and the peritoneal cavity opened. A moderate amount of sero-purulent fluid escaped and the presenting loops of intestine were red and presented areas covered with plastic exudate. No adhesions were encountered; nor was there any evidence of a protective wall around the appendix. The appendix was located with considerable difficulty. It protruded by about two-thirds of its length from behind the inner margin of cecum, high up, and was held firmly by its proximal extremity to the floor of the iliac fossa. It was dark red in color, greatly swollen, covered with particles of exudate and about its centre was a small gangrenous area where rupture had taken place.

Because of the indications of a well advanced peritonitis and the necessity for haste only that part of the appendix that protruded from behind the cecum was ligated with its mesentery and removed.

Multiple cigarette drains were used. The wound was left wide open for efficient drainage. Patient was returned to his bed with pulse of 86 and in fairly good condition. Fowler's position was resorted to and rectal infusion of normal saline 40 to 60 drops to the minute was commenced immediately. There was only slight nausea, no vomiting immediately after operation and six hours later

he expelled considerable gas. For the next five days the indications were favorable for an uninterrupted recovery. The bowels were moved by enema with good result, the pulse ranged from 62 to 88 and the temperature 97 to 99; gas pains did not cause as much distress as usual.

On the fifth day the patient began to experience considerable abdominal distress in that there was pain, spasmodic in character, and increasing in intensity. He began to hiccough, felt nauseated and belched up gas and mucus occasionally. On the seventh day he was vomiting instead of belching, first stomach contents then a bile stained fluid. When the vomiting of the brownish fluid became quite frequent to the surprise of everybody three or four round intestinal worms were found in it. Up to the beginning of the ninth day the results of enemata became decreasingly small in quantity until finally they returned clear. Spasms of pain became intense, tympanitis very marked and peristalsis was visible during the paroxysms of pain. Vomiting continued, temperature in the afternoon was 97°, pulse 120; and the patient rapidly getting weaker. All symptoms pointed to obstruction of the bowels. Every effort had been made to overcome it but without avail, and a second operation was decided upon.

Ether anesthesia was employed, the original wound opened wide, and a rapid search was made for the obstruction. Loops of intestine were only slightly adherent, some greatly distended and others collapsed. One loop was found with a greatly distended proximal limb and a collapsed distal limb. It was quite adherent to the brim of the pelvis posteriorly. However, it was readily loosened with the finger and immediately the collapsed bowel began to fill with gas. This then was the cause of the obstruction. Drainage was again employed and the patient was again returned to his bed with pulse ranging from 130 to 150 and quite weak. Modified Fowler's position and the saline per rectum were used. Ten hours after operation the patient began passing large quantities of fecal matter involuntarily. For next thirty hours indications were very favorable, the pulse dropping down from 158 to 110 and the patient fairly comfortable. Symptoms of intestinal obstruction then manifested themselves again. This time, however, they were much more acute and signs of prostration came on within a few hours. An emergency operation was then resorted to.

A distended loop of small intestine presented itself in the wound and in this was secured by means of purse-string sutures a quarter-inch rubber tube. Large quantities of gas escaped through it immediately, and with it came gushes of fecal matter. Within a few minutes the abdomen was much softer and the patient much relieved. Fifteen hours after the intestinal drainage was resorted to, pulse dropped from 140 to 110. Vomiting stopped at once and about twelve hours after the patient had a bowel movement of a large quantity of liquid fecal matter. Undoubtedly the obstruction was only partial but with the distension of the intestines from gas formation the kinking became more acute and the obstruction complete. However, with the release of pressure against the point of obstruction it became relieved and the intestinal contents began to go the normal way.

During the next sixty days patient improved rapidly. His pulse ranged about 80, was taking on weight, and suffered from no abdominal distress whatever. Bowels moved normally almost every day but occasionally enemata were given. The fistula required constant attention in that it discharged intestinal contents of great digestive power and as a consequence the skin around the wound would within a few hours, if neglected, show foci of ulceration. Granulations formed rapidly and it was hoped that the fistula would be closed by the natural contraction of the wound. An attempt was made to close it with a Lembert suture but without

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success. The intestinal mucosa seemed to pout more and more as days passed by. Accordingly it was decided to operate for the closure of the fistula. This was done sixty days after the fistula was established. The wound was cleansed as thoroughly as possible, packed with gauze and covered with gutta percha tissue. An incision was then made in the median line, the limbs of the loop that the fistula was made in were located, and a lateral anastomosis made. The median incision was then closed. The old wound was exposed, adherent loops of intestine were released and the fistula that was large enough to admit the ends of three fingers closed by over and over sutures.

Because of the highly digestive powers of the intestinal juice with which this wound had been continually bathed, it was felt that it was sufficiently clean to warrant closing tight after freshening the edges by removal of scar tissue. This was done and at the end of two weeks union had taken place by primary intention, leaving a strong abdominal wall. The patient six months after his discharge from the hospital was enjoying good health, and his abdominal wall about the site of the wound showed no sign of weakness that would predispose to the formation of a hernia.

Case No. 2. Patient a male, age 25 years, occupation, clerk. Was first seen Wednesday morning, Nov. 15, 1911. He gave a history of having eaten the day previous for luncheon a number of frankfurters and a quantity of sauerkraut. About four o'clock that afternoon he suffered considerable epigastric distress. After vomiting a large quantity of undigested food he felt much relieved but still suffered from soreness through his entire abdomen. When seen Wednesday morning his pulse was 80, temperature 99°, the entire abdomen was somewhat sensitive to pressure especially in the epigastric region; there was no muscular rigidity, nor did he complain of any special tenderness about the region of the appendix. A diagnosis of acute indigestion was made and a dose of castor oil was administered, two or three copious bowel movements following. The patient was again seen the next morning. Pulse was 95, temperature 99.2°; his facial expression was one of anxiety in marked contrast to the placid expression of the day before. The abdominal pain had become more localized about the umbilicus; there was marked right rectus rigidity and pressure just to the right of the umbilicus caused extreme pain. A diagnosis of acute appendicitis was made and the patient removed to the hospital at once. Urine examination was negative, leukocyte count was 21,000, polymorphonuclear percentage was 96.

Operation was performed without delay and the following conditions were found: The cecum was turned on its long axis so that its free extremity was lying beneath the attached margin of the meso-colon; the great omentum was drawn up about the cecum and appendix. The whole mass was delivered and the appendix freed. It was very swollen, engorged and at a gangrenous point near its apex rupture had already taken place. It was removed as was also a swollen, indurated and discolored part of the omentum that immediately surrounded the appendix. In tying off this part of the omentum I wish to mention that No. 1 iodized catgut was used. Cigarette drains were used and the wound left well open. This unusual location of the cecum and appendix undoubtedly accounted for the absence of the usual local findings in appendicitis in the right iliac region.

Normal saline per rectum and Fowler's position were employed. Up to the tenth day the patient's progress was very satisfactory. His pulse ranged between 60 and 80 and the temperature seldom reached 99°. Bowel movements of good character and quantity were procured daily and he felt quite comfortable. On the fourteenth day, however, he began to belch considerable gas, felt nauseated and appetite failed him. The belching went on to

vomiting, and the abdominal distress from distention and spasms of pain became very intense. Three days after no result could be obtained by enema and peristalsis became visible. There was every indication of acute intestinal obstruction and after it was demonstrated that no relief could be had by the simpler methods, the patient was taken to the operating room, the old wound opened wide and the abdomen explored. In the umbilical region a number of loops of small intestine were found massed together and held by plastic exudate. They surrounded the ligated stump of the omentum of which a part had been removed. In this stump was a small abscess containing about one drachm of pus. No foreign material could be found.

The relief anticipated from freeing these loops of intestine was not obtained. A few hours after the operation a considerable quantity of liquid fecal matter and flatus was passed. But after that all the symptoms of obstruction recurred and at the end of the second day the patient's condition was so alarming that it was decided to institute intestinal drainage. This was done by puncturing a distended loop of bowel, that presented itself into the abdominal wound and a rubber tube inserted and held in situ by a purse-string suture. So long as the parietal peritoneum was not touched in doing this the pain was nil and the patient suffered absolutely no distress during its performance. The abdominal distension that existed just prior to this was tremendous. The abdominal wall was tense as a drum-head, liver dullness was obliterated, the costal margin bulged and respiration and heart action were interfered with greatly; undoubtedly this patient could have lived but a few hours longer under such conditions.

The relief from the intestinal drainage was immediate. Large quantities of gas and liquid fecal matter shot through the tube and at the end of an hour the patient was sleeping soundly. Thirty hours later he began to expel gas per rectum and after the end of second day with the aid of enemata satisfactory bowel movements were procured daily. He was able to take liquid and soft nourishment in fair quantities and his general condition improved markedly from day to day. A few hours after the intestinal drainage was instituted a second fistula appeared in the cecum.

The laparotomy wound began to granulate well. At the end of three weeks an abscess formed just beneath the parietal peritoneum about two inches above the wound. This was opened by rapidly insinuating the finger between the abdominal wall and intestines and it was kept open by using a rubber tube. Pus kept discharging for a number of days, and with the possibility of a piece of infected and non-absorbable catgut being the cause of the persistence of the pus-formation the cavity was explored with a pair of tissue forceps. A hard, tough knot of catgut was removed. This, then, was the cause of all the complications arising in this case.

The wound healed rapidly after this but the fistula persisted and showed no disposition to close. Six weeks later under novocaine and adrenalin anesthesia the involved loop was freed, the fistula was closed with two layers of interrupted catgut sutures, the edges of the abdominal wound freshened and sutured with through and through silk-worm gut. No drainage was instituted and in two weeks the wound was firmly healed.

The patient is now at work and suffers no distress.

From the study of these two cases emphasis may be laid upon the following:

1. That the ultimate result following operation for such acute infective conditions where the infection is spread well beyond the initial focus carries with it a great element of uncertainty.

2. That the cohesive character of the visceral peritoneum when inflamed and covered with par-

4. That plastic exudate is a factor to be seriously considered in the post-operative treatment.

5. That the character of catgut used in the peritoneum for any purpose should be of the best quality to insure complete absorption and it should be of the lightest weight possible that is consistent with the purpose it is intended to serve.

6. That the intestinal paresis that results from manipulation especially in the presence of infection is a factor of such gravity that every measure should be instituted to prevent its occurrence.

7. That when obstipation exists as a result of such paresis and is aggravated by partial constriction from adhesions, a stretching of the intestinal musculature takes place from the accumulation of gases, and that this overstretching may be to such a degree and so prolonged that it is impossible for the musculature to regain its tone.

8. That the absorption of toxins from the intestines under such conditions is the most potent factor in causing the death of the patient.

9. That for the purposes of relieving pressure within the intestines and so permitting the musculature to regain its tone, and for the purpose of preventing absorption of toxins from the bowels intestinal drainage through an artificial fistula is most efficient.

CHINESE MEDICINE IN AMERICA.

By CHARLES KIRKLAND ROYS, M. D., Wei-hsien, China.

Conditions in China as a result of, or in spite of, the native practice of medicine, are bad enough; but it appears that certain wily Celestials are actually trying to introduce their system of medicine into America. It is hard for one not on the ground to tell just how far this propaganda has advanced, but to judge by pamphlets and newspaper articles, it has gained quite a foothold, at least on the Pacific Coast. At any rate, it seems time that the public should know something of the truth about the native pharmacopeia and practice of medicine in China. The writer has no intention of being drawn into a controversy on this subject. A certain wise old medical man (named Oliver Wendell Holmes) once said: "Controversy equalizes fools and wise men, and the fools know it." This adage largely explains why medical men as a class are so slow to enter the lists and appeal to the public prints in defense of what they know to be the truth. It is only in cases of glaring misstatement, with plausible promises incapable of fulfillment, that the temptation to tell a little truth, if only to relieve the monotony of lies on the subject, becomes irresistible.

The ethical principles involved in quackery and the vending of nostrums are not at once evident to all minds. Indeed, to some, the practice seems to have no ethical bearing at all; while some of the vendors even pose as "friends of the human race." Why should a simple combination of harmless drugs, which passes the tests of the Pure Food and Drug laws (and advertises the fact), be frowned upon by bearded medicos? Is there any reason, outside the danger to their business, which actuates these men? They are not infallible, they often do not agree over a case or a treatment; why should they unite to cry anathema when the subject of patent medicines is mentioned?

In the last analysis, it is because the actual effects, the end-results, of this particular form of

confidence-game are apparent and familiar to this small proportion of the community only, whose position as practitioners of medicine lays them open to the charge of prejudice in their testimony.

Ethical ideas are best conveyed by parables. Consider then the parable of the excursion steamer "General Slocum," conveying a thousand women and children up the East River one pleasant June day six or eight years ago. Fire breaks out in the bow, and, fanned by the wind of her forward rush, sweeps the old tinder-box from stem to stern. The helpless passengers, driven to the stern decks by the blast of oncoming flame, grasp what life-preservers are available, and leap overboard, most of them never to rise again.

Why? In the inquiry of our government, vigorously paternal after the fact, the reason came out. The life-preservers were of refuse cork, held together by iron rods. They were life-preservers which could not preserve life. To trust them in emergency was death. Piled under the seats (or on the shelves of the druggist), such life-preservers are harmless enough; but both are utterly unreliable in time of direst need. And the day will come when the men who advertise the cure of consumption by this or that "balm" or "syrup" or of cancer without the knife, and so delude thousands into delay that means death, will be considered on the same ethical level as those men who put the iron rods into the life-preservers, and will be treated accordingly. People are coming to realize the place of advertised medicines, and to understand that in sickness it does not matter so much *what* is given the patient, as it does *how* it is given him.

And it is frankly with the idea of helping on this campaign of education that the writer has attempted to set forth something of conditions in China, where is found a people, the oldest and greatest (at least numerically) in the world, still dependent on quacks and charlatans for the relief of physical ills. The Chinese probably have suffered as much "at the hands of many physicians" as any people in the world. Here is a vast and ignorant population which has cherished for ages the superstition that there are cure-alls, or at least specifics, for every ill to which flesh is heir. This superstition is the foundation on which the vast fortunes of patent-medicine men are reared.

A pamphlet has been circulated for some years on the Pacific Coast entitled "The Science, of Oriental Medicine, Diet and Hygiene." It was issued by the "Foo and Wing" Herb Co., of Los Angeles, and may be taken as a fair sample of the claims of these genial Orientals, and a statement of the grounds on which they are based. Dr. Foo is said to be a "graduate" of the "Imperial Medical School" of China. He desires to found a school for the study of Oriental Medicine in America, on the ground that this system, having come down unchanged for four thousand years, must be better than western medical science, which is constantly changing, and is being added to from year to year.

Messrs. Foo and Wing seem to have been taken up by a typical patent-medicine promoter of unusual

ability, who realizes "that there are fortunes awaiting the people who are first to study into these matters, and adapt this system to the needs of our civilization" (p. 86 of pamphlet). Probably there are. The men who put the iron rods in the life-preservers probably made fortunes, too, yet they were not very popular about six years ago. And the men who delude credulous women with incipient cancer into dallying with "harmless herbal remedies," offering cures "without knife or plasters," in familiar charlatan's phraseology, should be put in the same category by all thinking people.

It does not seem likely, but there may be people in America who do not realize that the botany and materia medica of China have been investigated repeatedly by western scientists. Tatarinov, Williams, Hanbury, Porter Smith, and a host of other authorities might be cited, and only recently the writer had the privilege of meeting Mr. Frank Meyer, Botanical Explorer for the United States Government, on a trip which had covered some years of careful investigation in all parts of China. The "herbal remedies" are well-known to western physicians under their true botanical names, and with their actual, not legendary, properties tested in full by scientific methods. But, our promoter protests, foreigners have no knowledge of the ancient books from which Chinese medicine is taught. Evidently he is honestly ignorant of the number of times that the writings of the legendary "Shen Nung" (2700 B. C.) have been read and studied by sinologues like Dr. S. Wells Williams, and botanists like Dr. Ernst Faber, whose knowledge of the "Wen-li," or literary language of China, was certainly equal to that of Mr. Foo or Mr. Wing, and who were further possessed of scientific training and critical faculties which are entirely foreign to the parrot-knowledge of the Chinese scholar. There is no lack of knowledge of the foundations on which Chinese medicine rests, both in the writings ascribed to Shen Nung, and in the much more compendious work of Li Shi-chin, a little handbook in forty volumes; which is only some three hundred years old, and so not ranked as a first-rate authority by the physicians of the "old school," with whom Mr. Foo claims affiliation. The chapters in the pamphlet under consideration for which the learned Foo is evidently personally responsible, are a very fair presentation of the teaching of Chinese medical works. To avoid any possible charge of prejudice in translation, we will take his statements of Chinese ideas on human anatomy and physiology as they stand. If these statements are taken at their face value, then this production, appropriately bound in yellow, can have little peril to any one even dimly familiar with facts. It needs only a most cursory reading to show the absurdity of calling this medley of vague tradition, superficial observation, and illogical deduction a "Science" of Oriental Medicine.

We read that "The lungs belong to the mineral element. . . . They look like an umbrella. They have eight lobes." . . . "The Heart. When a man sleeps, the brain power returns to the heart." "The power of the Heart-case (pericardium?) goes through the natural heat between

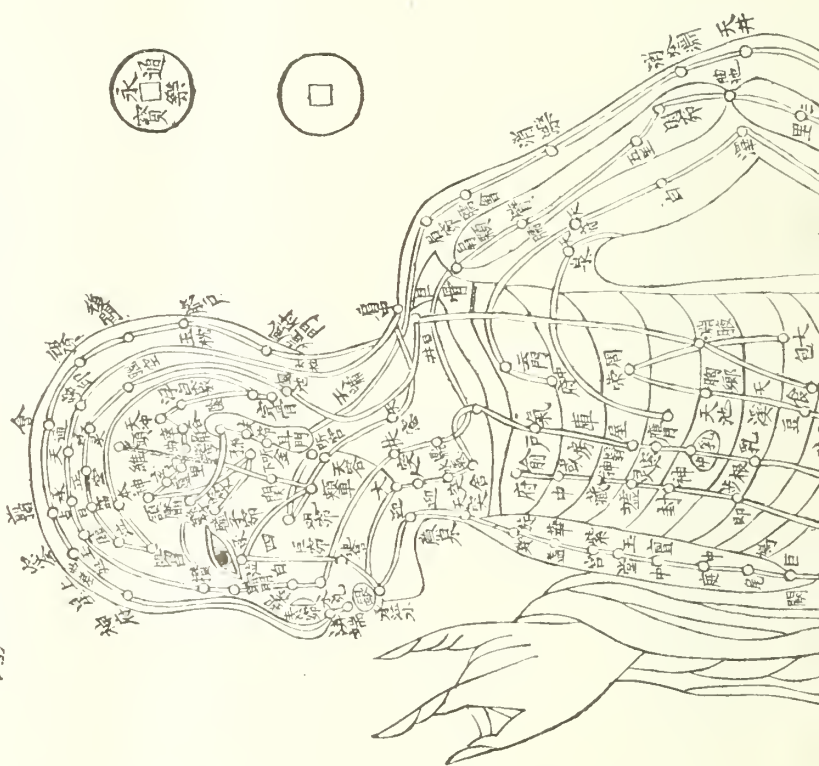
the two kidneys, where is the seat of life. The heart and the brain and the kidneys are all connected by the current of air through the natural heat, and make up one family." This is proved to the entire satisfaction of the Celestial logician by the following facts: "The pulse follows the spine to the brain, and the kidneys furnish juices to the brain. This is shown because the natural juices of the kidneys are white, the marrow of the spine is white, and the natural juices of the brain are white." Later Mr. Foo gives a very good account of the Chinese cosmogony, which was also elucidated by the great and good Shen Nung, four thousand years ago, "Everything in the world is included in the five elements, namely, water, mineral, vegetation, fire and earth. In the vital organs there are also five kinds of elements, and everything in vegetation corresponds. . . . The color of things belonging to the fire element is red, the taste is bitter, and the power from these rushes through the system. These . . . influence the heart, the heart-case, and the small intestine, which belong to the fire element." "The natural color of the vegetation element is green. Now the gall is green, so you may know that the liver and the gall belong to the vegetation element." "Again, the natural color of the fire element is red. The blood is red. Therefore the heart and the heart-case belong to the fire element." Not to run through the entire classification, arranged on this most simple and convenient basis, we will choose one more gem. "The natural color of the earth element is yellow. The stomach gets power from the spleen, which produces the gastric juice. The color in this case is yellow—so you can know that the spleen and the stomach belong to the earth element."

Please remember that these statements are printed in English, copyrighted in America, and intended for American consumption. Furthermore, to judge from the names signed to the usual testimonials of patent medicine literature which are appended, these statements have been swallowed by a "Judge," a "Reverend," and have been masticated at least by a newspaper editor; who, of course, may not swallow everything he sees fit to print. But let us return to Mr. Foo and his cosmogony, which is undoubtedly his honest belief, along with the few hundred millions of his countrymen who have held this venerable creed for so many centuries.

"Mineral produces water: water produces vegetation: vegetation produces fire: fire produces earth: earth produces mineral." "The mineral element is stronger than the vegetation, and can control it; vegetation controls the earth, earth controls water, water controls fire, and fire controls mineral; water can stop fire and dissolve mineral." . . . "This is the simplest explanation of the relation between the herbal remedies and their effects on the different vital organs." Here you have in a nutshell the Chinese conception of nature and the working of natural laws. According to this, medical science is on the same basis as astrology, and certain drugs influence certain organs by mysterious laws of relationship, as certain planets influence certain destinies. And this beyond question

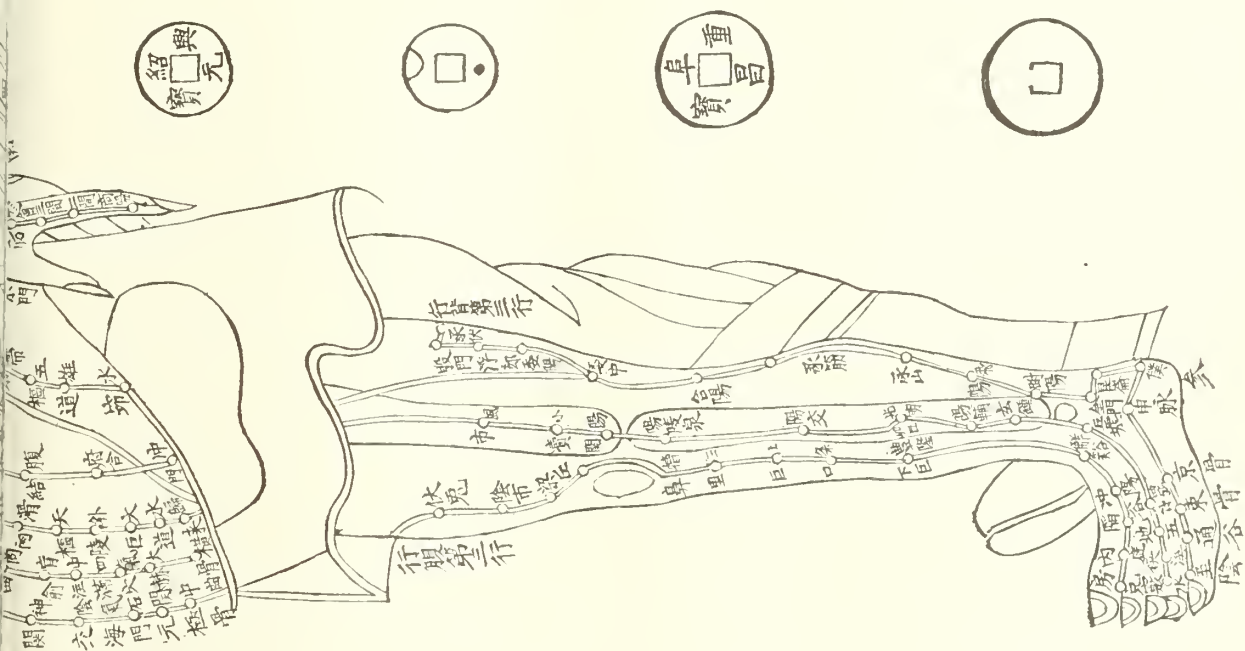
側人明堂圖

經言肺之原出於太淵
 心之原出於太陵
 肝之原出於太衝
 脾之原出於太白
 腎之原出於太谿
 心之原出於兌骨
 脾神胆之原出於崑崙
 胃之原出於衝陽
 三焦之原出於陽池
 膀胱之原出於京骨
 大腸之原出於合谷
 小腸之原出於腕骨
 是十二經之原
 又不可不知也



CHINESE MEDICAL DIAGRAM
 OF THE HUMAN BODY.

SOME OF THE PLACES WHERE
 NEEDLES MAY BE INSERTED
 TO LET OUT DISEASE, SHOWN
 BY SMALL CIRCLES. PARAL-
 LEL LINES SHOW IMAGINARY



嘉慶二十四年 恩賜太醫院六品御醫錢松鏡湖氏重鐫

is still the view of many people even in America, including some Judges and Reverends, who fail to realize that the actions of a drug in the human body are definite chemical combinations and physical reactions, selective for certain tissues, and becoming more clearly understood and formulated with each succeeding year. As Prof. Cushney says, "The action of drugs is quantitative and not qualitative; the activity of living matter may be changed, but the form which the activity assumes is unchangeable."

In other words you can quicken or retard the action of the heart, by giving the proper drugs in the proper way, but no drugs will make the heart do anything but pump blood through the arteries and veins. The Chinese idea, and that not uncommonly held even in America, is that certain drugs have the power to go to certain organs, and by the exercise of some mysterious and transcendental force, drive out any disease which may affect these organs. This is the superstition to which the patent medicine men appeal, with their "kidney-cures," "liver-cures," "lung-cures," and all the long list of cures over which so much printer's ink has been shed, and so many landscapes disfigured. We are quite ready to laugh at the absurd notions of the Chinese, but a trip from New York to Philadelphia by daylight, between almost unbroken rows of signboards whose staring colors proclaim the virtues of this or that "cure" will show how large a proportion of enlightened Americans are still, through an unreasoning habit of mind, pretty much on the same level mentally as the "heathen" at whom we laugh.

As to actual conditions in China, they are about what one would expect where over-population produces a fearful struggle for existence, where ignorance leads to constant infraction of nature's laws, and where there is only denser ignorance available to relieve the suffering which results from the struggle and the law-breaking. Needless to say, the Chinese medical profession contributes little or nothing to the actual betterment of conditions; indeed its efforts could be more properly put on the debit side of the account, for the few drugs of value within the scope of its knowledge are so generally misused, and its practice is so full of useless and even brutal maltreatment, that not a little of this sum total of misery must be laid to its charge. Even the best of them, "graduates" of the "Imperial Medical College," are the merest ignorant empirics. Dr. S. Wells Williams, for years the Secretary of the American Legation at Peking, with unequalled opportunities for observation, says of this "College": "There are nine main divisions in Chinese medicine. . . . A professor of each of these classes is attached to the Royal Family, who is taken from the (Imperial) Medical College at Peking. But he has no greater advantages than he could get from his own reading and practice. No museums of morbid or comparative anatomy exist in the country, nor are there any lectures or dissections; and the routine which old custom has sanctioned will go on till modern practice, now rapidly taking its place, wins its way." China can usually show the oldest examples of any

form of abuse or fraud, and here is the oldest example of the "diploma factory" for physicians, now fortunately all but extinct in America. Its graduates have a parrot-knowledge of an appalling array of huge tomes, but in the words of a rustic philosopher, "It is better not to know so much, than to know so much that ain't so." As Remusat said of them: "In place of studying the organization of bodies, they undertake by reasoning to determine how it should be: an aim which has not seldom led them far from the end they proposed."

If this is true of the best that China can produce, the court physicians of the Emperor, it is not hard to appreciate the attainments of the average Chinese medical man, and to understand the results of his practice. There are the "needle-doctors," whose entire armamentarium consists of needles of different shapes and sizes, and whose entire training it is to learn the three hundred and twenty or more places into which a needle may be thrust to "let out the disease." The writer has repeatedly seen old festering sores and even destruction of the eye or the knee-joint as a result of such punctures. Then there are the men who use caustic chemicals or the red-hot iron for all forms of disease. There is a Chinese treatise on the use of the cautery which fills seven volumes. Then there are the absurd and useless remedies handed down for ages as of sovereign efficacy. A classic example is a treatment for eye disease. "Put half a chicken over the eye as a poultice, and eat the other half." There is some ground for the Chinese proverb, "The ordinary physician is a murderer." Fortunately for China, its leaders now realize the defects of the old system, and are doing their best to introduce Western medical science. The relatively few Chinese who have been trained according to Western ideas in Government and Missionary medical schools are in great demand among all classes of the population; and the influence of the old-style physician of China is daily lessening among his own people.

The writer does not wish to be charged with overestimating the influence of Chinese practitioners in America. They are a fad of which the good people of Los Angeles, Boston, and Brooklyn will soon tire; as with theosophy and kindred delusions, these cities will always welcome "some new thing." But in behalf of the credulous woman and the defenseless child who suffer by these follies, the truth should be given at least as much circulation as the falsehood, even if somebody loses money thereby.

SARCOMA OF THE UTERUS.*

By EMMET RIXFORD, M. D., San Francisco.

Sarcoma of the womb is commonly regarded as a comparatively rare tumor and as a consequence has received very little attention from clinicians until within recent years. While cases of "recurrent fibroids" had been observed and recorded and which were doubtless sarcomatous, the first case to be designated sarcoma of the womb was reported

* Read before the Forty-Second Annual Meeting of the State Society, Del Monte, April, 1912.

by Carl Mayer in 1860, a polypoid sarcoma of the uterine mucous membrane of which the diagnosis was verified by Virchow. In 1867 Veit got together three cases, and in 1871, according to Senn, Keegar based an investigation of sarcoma of the uterus on nine cases reported up to that time. The statistics of Gurlt showed that of 2,649 uterine tumors 1571 were diagnosticated as carcinoma, 883 as fibro-myoma and only 2 as sarcoma, i. e., 1 sarcoma to 1228 uterine tumors or 1 sarcoma to 785 carcinomata. Roger Williams in England found only 8 sarcomata in 4115 uterine tumors or 1 in 514.

Recent statistics, however, show a very different frequency. Geisler in the Frauen Klinik at Breslau put the relative frequency of sarcoma to carcinoma as 1 to 50, and Veit, gathering together the material in the clinic of Halle for 17 years, found 40 sarcomata to 1493 carcinomata or 1 to 37.1. Krukenberg found 1 to 47.5 in the University Frauen Klinik at Berlin. We therefore may assume that the estimated frequency of the diagnosis of sarcoma of the womb compared to that of carcinoma is approximately 1 to 40.

It is probable, however, that even these figures underestimate the relative frequency of sarcoma of the womb, largely because of the difficulties in diagnosis and because statistics are very apt to include cases which have not been subjected to thorough microscopical examination by competent pathologists. Veit asks the question how often is the diagnosis of inoperable carcinoma of the cervix made on clinical grounds alone, and he calls attention to the fact that the resemblances of sarcoma to carcinoma in this region are so great as to make differential diagnosis difficult; moreover it should be remembered that mixed forms of carcinoma and sarcoma occur in the cervix uteri as well as alveolar sarcoma which may readily be mistaken for carcinoma.

My own personal cases in private practice, with systematic microscopical diagnosis, show a much greater frequency than the above figures would indicate although the number of cases is too small to warrant anything very definite being predicated concerning their significance. I have performed hysterectomy in five cases of sarcoma of the womb and during the same period have removed fibromyomata in sixty cases and carcinomata of the womb in twenty, making the relation of sarcoma to uterine tumors in general 1 to 17, and of sarcoma to carcinoma 1 to 4.

A full bibliography of sarcoma of the womb up to the year 1908 is to be found in Veit's *Handbuch der Gynaekologie*, Third Edition, with exhaustive discussion on the anatomy and histology by R. Meyer and the clinical considerations by J. Veit of Halle.

To the pathologist sarcoma of the womb is of particular interest because the tumors frequently consist of non-striped muscle, the tumor being a malignant leiomyoma and the question has given rise to much investigation and debate as to whether the muscle cells in the tumors are essential parts of the malignant neoplasm or merely the result of growth of muscle cells infiltrating between the

bundles of fibrous tissues in the round celled or spindle celled forms of sarcoma. It would appear that the preponderance of opinion is in favor of the former view—(Mallory).

Between the pure leiomyoma and the spindle celled sarcoma lie transitional forms in which the proportion of muscle cells to spindle cells varies from one extreme to the other. Again different parts of the same tumor will present different histological characteristics.

Of the sarcomata of the wall of the uterus, most, if not all, have their origin in pre-existing fibromyomata as shown by many observations of small sarcomatous areas found within typical fibromyomata, a fact which is of the greatest clinical significance.

There is much confusion in nomenclature arising from the curious mixture of forms of mesoblastic tumors found in the womb. There have been described in addition to the forms mentioned, myxosarcoma, lipo-sarcoma, alveolar-sarcoma, angio-sarcoma, etc., etc., the matter being further complicated by degenerative processes. Following Meyer it would be preferable to limit the use of the word myo-sarcoma to designate a mixture of myoma and sarcoma, i. e., two individual tumors coexisting and in the same way carcino-sarcoma, angio-sarcoma, etc., designating the sarcoma in which muscle cells predominate as myomatous sarcoma and that in which spindle cells predominate as fibromatous sarcoma and intermediate forms as myo-fibromatous sarcoma.

Cases have been recorded of multiple sarcomata within the uterine wall: tumors varying in size from that of a pea to that of a walnut in the same womb. A condition difficult to account for unless by metastasis, but the very occurrence of which argues strongly against partial hysterectomy in favor of total.

To the clinician the chief interest in sarcoma of the womb is in the clinical problem of making the diagnosis at a time when operative removal may be efficient as well as in the operative procedure indicated. In this connection it should be said that the malignancy of these tumors varies greatly. Some of them may exist a long time and grow to immense size without forming metastases, while others form metastases comparatively early. Olshausen removed a sarcoma of the uterus the size of a man's head, and Terrillon reported one said to have weighed 20 kg. The largest tumor of my personal cases weighed seven pounds.

Sarcoma of the womb is of much lower degree of malignancy than carcinoma in the sense of the tendency to the formation of metastases and to local recurrence after operative removal, but on the other hand it commonly grows much more rapidly and undergoes necrosis and breaks down under infection more readily and by infiltration, hemorrhage, and sepsis, destroys life quite as surely and much more rapidly than carcinoma.

The disease is not confined to any period of life. Cases have been reported as occurring in children under 5 years and in women over 70. The greatest period of frequency, however, is between 40

and 60. In the five cases here reported the ages at time of operation were 61, 40, 41, 35 and 56.

Excluding from present consideration the rare but exceedingly malignant *sarcoma botryoides* which appears in grape-like masses hanging from the cervical canal, sarcoma of the womb occurs clinically in two principal forms, the one developing in the wall of the uterus and the other in the mucous membrane, the first resembling fibro-myoma in its clinical and microscopical aspects, the other being difficult to distinguish from carcinoma, especially if diffuse and affecting the cervix.

It is not always possible to differentiate the wall sarcoma from mucous membrane sarcoma, especially in the later stages when symptoms such as bleeding, discharge, pain and pressure ensue, for they are common to both. In the earlier stages the mucous membrane tumors sometimes give symptoms more or less characteristic of their site.

There are no characteristic symptoms of malignancy, though persistent hemorrhage and cachexia in the absence of sufficient hemorrhage to account for the anemia and weakness are so regarded, but these are late rather than early symptoms. There will always be cases in which the sarcoma is discovered to be such only after removal of the tumor under the diagnosis of fibro-myoma, the practical meaning of which is simply to widen the indications for operative removal of fibroids.

On the part of the mucous membrane there are no characteristic symptoms even when the tumor originates in the mucous membrane—bleeding in the form of increased menstrual flow, continuous oozing in the interval occur also in subinvolution, chronic hypertrophic endometritis and in polyposis, but sudden tremendous hemorrhages such as are common with polypi are said not to occur in sarcoma. However, in one of the five cases here reported this very form of hemorrhage did occur and so severely that the patient was practically exsanguinated when she consulted a physician for the first time.

Retention of the bloody fluids by reason of the tumor obstructing the cervical canal may occur and to an extreme degree—five quarts in one case and in another a hematometra of fifteen litres was found. Pyometra occurs occasionally in the presence of infection with obstruction.

Most of the following are late symptoms, but they are of value in making evident the necessity for haste in operative removal of the tumors: failure of an apparent myoma to shrink following the menopause, recurrence of bleeding after the menopause, development of cachexia and weakness in the presence of myoma, ascites in the presence of myoma, rapidly growing or in softening myoma and when a polyp recurs after removal (all polypi removed should be carefully examined microscopically. [Veit].

In diffuse sarcoma of the mucous membrane nothing short of total hysterectomy is indicated and in wall sarcoma of the body of the womb resembling pedunculated fibroids, total hysterectomy is preferable to partial, for the pedicle is most often sarcomatous and cases have been reported in which

the disease recurred in the cervix after supravaginal amputation.

In cases of infection and sloughing of the intra-uterine tumor or in the presence of pyometra a two-stage operation is preferable—emptying of the uterus and removal of necrotic parts of the tumor may be performed through the vagina and after some weeks either vaginal or supra-pubic hysterectomy, with preference for the latter.

Most text books discussing fibro-myoma of the womb have more or less to say about the disappearance of such tumors at the menopause, by atrophy, calcification, etc., so that it is common to encourage a patient the subject of myoma and who is entering the menopause to wait for a time to see if the tumor will not shrivel or disappear. It is dangerous advice and should be given only with the greatest caution and with the necessity of systematic examination impressed upon the patient. The development of a sarcoma in one case of fibro-myoma in which such advice is heeded will overbalance the operative risk in many cases in which the fibro-myomata might have atrophied if not molested. In one of my five cases I gave such advice but within four weeks the tumor had so increased in size as to demand removal, and it was afterwards found that even before operation a number of metastases had formed. Probably operation a month earlier would not have forestalled metastasis, as this tumor seemed particularly malignant.

Without doubt patients with fibro-myomata, especially if approaching the menopause, should be examined at regular and frequent intervals to detect any increase in size, change in character especially softening, increase of tenderness, increase in menstrual flow, bleeding recurring after the menopause, the occurrence of a foul discharge, etc. In the presence of any of these symptoms the interior of the womb should be investigated with a curette and the aid of the microscope should be sought or else an hysterectomy be performed. In fact, in my opinion the indications for operative removal of fibro-myoma should be increased rather than curtailed, that the doubts may be on the other side.

All tissues removed in hysterectomy and especially in myomectomy should be subjected to a most searching microscopical examination by a competent pathologist, and if sarcomatous tissue be found the whole womb with the adnexa should be extirpated, because even when the abdomen is opened it is often impossible to say from the appearance of the tumor whether it is simply a congested, inflamed, or degenerated fibro-myoma or a sarcoma.

Of the five cases whose histories are appended, two were in patients who had passed the menopause and all were of the type resembling fibro-myoma. Two grew from the fundus of the womb as more or less pedunculated tumors, evidently having originated in the uterine muscle and grown outwards through the peritoneum, and three projected into the dilated cavity of the womb. In two of these latter, bleeding was severe. In the two tumors projecting from the fundus of the womb there was

but slight increase in the menstrual flow. In one case in a woman of 56 who had long since passed the menopause and thought herself in perfect health, there was no bleeding whatever until the patient received a fall, when a few drops of blood appeared calling attention to the tumor, although at that time it was of the size of the five months' pregnant uterus and was widely necrotic within. The three tumors which projected into the cavity of the womb were more or less necrotic on their surfaces and one of them was deeply necrotic and infected.

Case 1. Mrs. J. A. P., age 61. July, 1902. Had 4 children, the last 20 years ago. Patient was well until the age of 47 when menstruation began to be too profuse. Shortly thereafter it became very irregular and ceased until the age of 59 when flooding again came on. The attack was repeated after 2 months and recently the hemorrhages have become much more frequent. Several hemorrhages during the last week and slight continuous oozing. Patient has had very little pain, has frequent desire to urinate but has some difficulty in emptying the bladder. Is growing weaker though appetite is good. Never noticed the tumor in abdomen, simply thought abdomen was a little prominent. Has had severe leukorrhea for a number of years. During past few years discharge has increased, it has been foul smelling and acrid, patient being obliged to use douches continually.

Status: Very anemic, nervous woman past middle age. Abdomen protuberant, containing a large, round, soft tumor with pear-shaped projection to left of the middle line. Vulva excoriated from irritating discharge. Vagina short and atrophied. Cervix atrophic. Two fingers enter cervix readily and surround large, soft, intra-uterine tumor. Very offensive odor of dead tissue. Discharge profuse. With probe, which entered 8 or 9 inches, it was possible to make out the attachment of the tumor to be chiefly on the left side and very broad. Manipulation caused considerable bleeding, controlled by ergot. Haemoglobin 30%. Leukocytes 2,400. Polys 84%. Reds 2,536,000. Urine negative. Temperature 99° to 100°. Pulse 100.

Diagnosis: Sub-mucous myoma uteri undergoing necrosis and infected.

Operation: Because of the necrosis and evident infection it seemed best to remove the tumor per vaginam. The vagina readily stretched to admit the hand and the cervix did also with slight cutting. Tumor tissue to the amount of six pounds was removed by the hand, scissors, and volsellum forceps. Hemorrhage was not severe and was easily controlled by irrigating with hot water. Uterus was tamponed with gauze and it remained firmly contracted. Duration of operation one hour. Convalescence without incident.

The pathologist, Dr. Osners, reported the tumor to be a spindle-celled sarcoma.

Second operation after 3 weeks. Patient having gained much in strength, although the hemoglobin was only 40%, the discharge being no longer foul, vaginal hysterectomy was performed. The tumor being too large to be delivered, both uterine arteries were ligated and the uterus split antero-posteriorly and removed in halves. Convalescence normal and patient left hospital at the end of two weeks.

Five years later patient was reported as being in perfect health.

Case 2. Mrs. S., age 40. April, 1907. One child age 14 years. Several miscarriages and with one of these had chills and fever and was in bed several weeks. Present trouble first noticed 3 weeks ago. Sudden headache, chills, not referable to any known cause. Took physic and next day had pain in the pit of the stomach, whence it went to left groin. Her physician, Dr. Magnus of San Francisco, found

a large, hard tumor of the womb extending upwards into the left groin. Slight fever. Menstruation regular, normal in amount, and painless.

Status: Strong middle aged woman, apparently in good health. A pedunculated tumor connected with the womb extending upwards and to the left, the size of one's fist, markedly tender. No discharge.

Operation: Median incision. Pear-shaped tumor size of one's fist, somewhat larger at upper extremity than at its attachment to the fundus, covered with very large dilated blood vessels. Tumor soft, nodular, was thought to be malignant. Therefore a pan hysterectomy was performed. Normal convalescence. Patient left hospital at the end of three weeks.

On examination the pathologist reported the tumor to be spindle-celled sarcoma.

Four years after operation patient was reported in good health.

Case 3. Mrs. M. B., age 41. Sept., 1905. Patient had always enjoyed good health. Had three children, the youngest 9 years of age. Menstruation always regular but generally painful. Five months ago noticed hard mass in the lower abdomen unaccompanied by symptoms. Three months ago there was slight pain and patient consulted her physician, Dr. Henry Gibbons Jr. One month ago patient was referred to me in consultation. From the patient's account of her symptoms the pain did not seem very severe. Patient was not sure that the tumor was any larger than when it was first discovered 4 months previously. There had been no hemorrhage and not even any increase in the menstrual flow. No discharge.

Status: Well nourished middle aged woman apparently in perfect health. Tumor of the womb reaching well above the pubis, irregular in form like multiple fibromata, freely movable. Advised waiting a while until symptoms should arise warranting operation or the tumor should show a tendency to grow.

During the following month patient began to be very uncomfortable. Menstruation during this month more profuse than formerly. A good deal of pain because of expulsion of blood clots, it lasted 8 days. Recently has had increasing pain in the back and the right side sometimes radiating down thighs. States that the back would apparently ache more when she was in bed than when up and about. Got some relief from lying flat on the abdomen, but recently the tumor became too large to permit this. She therefore lies first on one side and then on the other and is so uncomfortable that she gets little sleep. Bowels regular. Urination a little more frequent than formerly. No evidences of pressure on bladder.

On examination tumor was seen to have very markedly increased in size. It was still fairly movable.

Operation: Median incision. Tumor not adherent, readily lifted out of the pelvis. Nodules whitish, surrounded by areas of redness with large blood vessels. There were two hard lymph glands the size of beans palpable in the right broad ligament. Over the iliac vein on the right side a rosette-like tumor 1½ inches in diameter on the peritoneum, freely movable over deeper tissues. This was apparently a metastasis and was excised. Complete pan hysterectomy was then performed. Convalescence without incident. Patient out of bed at the end of second week.

During the third week of convalescence patient complained of several tender points in her scalp. On examination these were evidently metastases. Patient then admitted that she had noticed them even before operation. Under chloroform several of these tumors were excised. They were slightly elevated and red around the borders. Microscopical examination showed them to be similar to the uterine tumor. Patient left the hospital and a month later showed a great number of metastases in dif-

ferent parts of the body. One in the spinal canal soon caused paraplegia and patient died about 9 weeks after operation. Microscopical diagnosis by Dr. Ophüls, fibro-sarcoma of womb.

Case 4. Miss M. B., age 35, March, 1910. Referred to me by Dr. Canney. Has always been strong and a hard-working woman. The first symptom calling patient's attention to the pelvis was a severe hemorrhage from the uterus. Bleeding was profuse and lasted for 3 or 4 days. Dr. Canney found a large pelvic tumor within the uterus which bled profusely upon the slightest touch.

Status: Tall, large Swedish woman. Intra-uterine tumor about the size of 6-months' pregnant uterus. Cervix thin, dilated by tumor. Tumor soft and elastic, bleeding readily, attached to womb by very broad peduncle. Hemoglobin 45%. Temperature 100°. Pulse 120.

Clinical diagnosis: Sarcoma of the womb.

Operation: Because of the low hemoglobin and the presence of decomposing blood in the vagina and the uterus it was thought that two stage operation was less hazardous. Cervix split in middle line. Vaginal outlet incised sufficiently to admit the hand posteriorly. Tumor pulled out with forceps and scissors. Moderate bleeding. Uterus packed. Wound in cervix sutured, also wound in peritoneum. On the second day of convalescence there was a sharp rise in temperature, otherwise convalescence was without incident.

Microscopical diagnosis by Dr. Ophüls, spindle-celled sarcoma of uterus.

Four weeks later hemoglobin 50%.

Abdominal hysterectomy. Right tube and ovary absent. Small round tumor size of an egg low down near the cervix on the left side posteriorly. Because of the apparent extension of tumor into the left broad ligament, wide dissection was made, removing the whole mass between the iliac vein and the uterus except the ureter, which was isolated for about 3 inches. Peritoneum closed completely with catgut sutures by drawing the broad ligaments together and suturing them to the anterior wall of the vagina and the base of the bladder and covering bladder flap in the center. Patient strained a great deal during the operation, requiring the use of many pads to hold the intestines back, which fact may account for subsequent adhesions. Convalescence without incident.

At the end of three weeks patient left the hospital, having had hemaboloids and Bland's pills. Hemoglobin 60%. Patient became well rapidly and gained in weight and strength and was able to perform her duties as a domestic.

About 8 months after operation patient was suddenly seized with severe vomiting and distress. A surgeon called in during my absence advised immediate operation for intestinal obstruction, but patient determined to wait until next day. About 12 hours after the beginning of the pain patient went into a sudden collapse and died in a few hours.

The abdomen was opened and extensive necrosis found of the small bowel, which was matted in the pelvis.

Case 5. Mrs. M., age 56. Feb., 1912. Referred by Dr. Hirschfelder. Menopause 8 years ago. Has always been a remarkably strong, healthy woman. Never sick in her life. Three months ago had slight attack of cystitis which yielded to medical treatment. Two or three weeks ago cystitis returned. One week ago had a slight fall followed in a few hours by a slight showing of blood in the vagina. Dr. Hirschfelder found a uterine tumor.

Status: Large stout woman, vaginal outlet very small. Uterus palpable above the pubis. Cervix high up. With much difficulty a curette was introduced into the womb and with it several pieces of soft tissue were removed.

On microscopical examination they proved to be necrotic and their structure was not to be made out. The fixity of the tumor, the bleeding follow-

ing the fall, the necrosis within the womb, strongly suggested malignancy.

February 8th, 1912—Operation: Vagina and interior of cervix painted with tincture of iodine. Supra-pubic pan-hysterectomy performed. There was considerable bleeding from pelvic veins torn in separating attachments in the pelvis.

Microscopical diagnosis by Dr. Ophüls, spindle-celled sarcoma of the uterus.

Convalescence without incident. October 1st, patient continues perfectly well, no evidence of recurrence.

Discussion.

Dr. W. W. Beckett, Los Angeles: I have not very much to add. I believe that the frequency of sarcoma of the uterus is much more frequent than we realize, largely because of the difficulty of making the diagnosis clinically between sarcoma and carcinoma and the lack of making thorough microscopical examination of the tumors removed. I believe now that I have removed sarcomata of the uterus which I have supposed at the time were carcinomata. I am now keeping very close records of these cases. I have only had two cases of primary sarcoma of the uterus. The other cases I have had have been degeneration from fibroid tumors. In all of these cases I think we should do a total supra-pubic hysterectomy, the same as we would go into the axillary space for a malignant tumor of the breast. I do not believe it is possible to do as clean a vaginal operation as we can do suprapubically. If we make a large incision and put the patient well in the Trendelenburg position and dissect out all the glands and adnexa of the uterus we will cure many of our patients. I think by all means that we should go suprapubically in these cases, lay the abdomen well open and clear out the pelvic cavity as thoroughly as possible. I would also make a plea for early removal of fibroid tumors of the uterus, as many in time become malignant, and if we wait until they are clinically malignant it is too late to save our patient.

Doctor Rixford, closing discussion: I have very little to add to what has been said except that if the diagnosis of sarcoma of the womb has been made, the choice of route whether vaginal or supra-pubic for the hysterectomy is a matter of decision on the part of the surgeon for the particular case in hand. The usual indications for abdominal hysterectomy applying to malignant disease have little meaning here for these sarcomata do not form metastasis by way of the lymph stream so that there is no meaning in the decision to make a wide dissection of the neighboring lymph glands. If one metastasis is found one may be sure there are others in the body and that the patient is doomed. Vaginal hysterectomy would be less dangerous than an abdominal in cases of necrosis of the tumor with infection and this condition often obtains in these large sarcomata. In the case mentioned in which I gave the advice to the woman with the fibroid to wait until after her menopause who returned four weeks later with the tumor greatly enlarged, I removed the tumor suprapubically and found when the abdomen was opened a single metastasis on the free surface of the peritoneum. There was no enlargement whatever of the lymph glands in the neighborhood. A few weeks later many metastases were found in the scalp and in various parts of the body; one in the spinal canal caused intense suffering and probably was the immediate cause of death. The points I wish to emphasize particularly are the necessity of systematic and thorough histological examination of all fibroids removed by the surgeon and this by a competent pathologist; the "best friend of the surgeon" is not the peritoneum but a competent pathologist. I would urge the widening rather than a curtailment of the indications for the operative removal of fibroids, especially as the menopause approaches and would be very guarded in advising patients with fibroids to wait for the menopause.

RAILWAY SURGEONS

HOOKWORM DISEASE, AND ITS IMPORTATION INTO CALIFORNIA.*

By JOHN W. COLBERT, M. D., Albuquerque, N. M.

Two years ago I presented a paper upon hookworm disease before this Society, but owing to the present-day importance of the subject I have considered that another presentation would not only be timely, but, in a measure, necessary to a proper appreciation of the future possibilities of the disease in your state.

Gentlemen, the hookworm situation in California to-day is alarming, and in spite of the rapid spread of the disease throughout the state within the past seven years, the situation thus far has received but scant attention, and the public, and to a large extent the medical profession of California, are not aware of the true state of affairs.

The fact that hookworm infection prevails to such a large extent in the southern states has a tendency to cause us western physicians to think of the hookworm as a distinctly southern problem, and the idea of the disease ever ravaging the fair state of California is apt to be dismissed by many of you men here to-day as an unfounded fancy. I may stand alone but, gentlemen, it is my firm belief that you in California will yet have the hookworm problem for solution, just as the South has it to-day. You may call me an "alarmist," and my statement a bold prophecy but, mark me, its fulfillment depends solely upon the attitude which will be adopted by your state and municipal health authorities within the next year or so. I hope this prophecy will not come true, for it is quite a different thing when it comes home to you, and you have to fight it at your own door, from when it is away off in Porto Rico, or in the southern states; but no longer can hookworm be considered a disease of the tropics or of our southern states. It is to-day a disease of universal distribution and threatens to become an international problem of serious proportions and is as much at home in California as in the southland.

Hookworm disease is not native to our soil. It is an imported disease, and its "import tax" has of a certainty been paid in blood—the purest Anglo-Saxon blood in America. The negroes, who came over from Africa in the slave-ships first brought the disease to American soil, and for many years it was confined entirely to the negroes. About a hundred years ago the disease began to develop among the whites in the southern part of our nation, and to-day over two million whites in our southern states harbor the parasite; and this parasite is responsible for lowering the working efficiency of these two million people; for establishing a death-rate higher than that of tuberculosis or typhoid fever or even yellow fever in its palmyest days; for greatly retarding the agricultural and industrial, the social, political, and economical growth of the south; and for costing hundreds of millions of dollars to the country, until to-day the eradication of this little parasite is preeminently the problem of the south.

In Porto Rico, where this disease is more pronounced and more prevalent than in any spot on the globe, the parasite was also imported by the negro slave—but at a much earlier date, probably in the sixteenth century. For many years the disease was confined to the coast, where the negroes worked in the sugar mills, but later the coffee culture carried the negroes into the mountain regions and the disease gained a foothold all over the little island, until a few years ago ninety per cent. of the rural population, or eighty per cent. of the entire population of the island harbored the parasite.

And now—how about California? Seven years ago the disease was unheard of in your state. Early in 1905 Dr. Herbert Gunn of San Francisco called attention to the fact that a large number of Porto Ricans were settling in California, and that over fifty per cent. of them were hookworm carriers. Two years ago, at the annual meeting of this association I called attention to the fact that the disease was being brought into this state from Mexico by the track laborers employed by the Santa Fe and Southern Pacific Railway Companies. Just a few weeks later Passed Assistant Surgeon Glover of the U. S. Public Health and Marine Hospital Service found that the disease was also being brought into the state by Hindu laborers. Dr. Gunn investigated some of the gold mines in your state and found that the disease was endemic in practically all of the gold mines of California, and in some of the mines seventy-five per cent. of the men were infected. At the same time Dr. Gunn also called attention to the fact that the infection was present among agricultural laborers of the state. And only recently the Oriental and West Indian gardeners working within your city limits have been found heavily infected with hookworm. You may say: "Why be alarmed? these cases are only imported ones." True, the majority of your cases to-day are only imported ones. The same was true of the south a hundred years ago, and Porto Rico three or four hundred years ago.

I venture the prediction that an investigation of your Oriental gardeners of the Sacramento and San Joaquin valleys, of the laborers in the hop and grape vineyards, the beet fields, the fruit orchards, and of the men employed along the route of the Owens River aqueduct in the south, will prove further foci of hookworm infection. Taking all of these numerous foci of infection into consideration, I do not believe I overestimate it when I claim that there are to-day upwards of fifty thousand cases of hookworm disease in California. Over the greater part of your state conditions are ideal for the propagation of the hookworm—every bit as much so as in Porto Rico, or the southern states—and wherever such favorable conditions are found it is only a matter of introduction, and the parasite will thrive. You already have the introduction—from Mexico, from India, from China, from Japan, from the West Indies. The disease is easily imported and all races are susceptible to it. In fact it is almost impossible to keep from importing it. Bear in mind also that the long life of the embryo—from one to two years—makes its eradication

* Read before the Pacific Association of Railway Surgeons, San Francisco, 1912.

from the soil, when once introduced, a very difficult problem. The hope of eradicating hookworm disease in our southern states in this generation, has been abandoned and for the present the Rockefeller Sanitary Commission looks forward only to ameliorating it and to the educating of the next generation. In view of these facts, and in this day of preventive medicine, it certainly seems to me that measures should be taken—and taken at once—to control the spread of this disease. Unless you men in California are on your guard, long before Rockefeller's million has been spent in the south to eradicate this disease, it will be found to have gained a strong foothold in your fair state. I believe, gentlemen, that the time is ripe for a hookworm conference in your state, such as was held at Atlanta, Ga., two years ago, having for its object the prevention of hookworm importation, the enactment of proper regulations looking to the extermination of all known foci of infection, and the improvement of the sanitation of mines and railroad camps, for California is certainly confronted with a problem of momentous import, and one whose gravity should awaken the profession of the state to early action. The disease is very easily held in check by simple measures, if not allowed to gain too great a foothold, and it would be a disgrace to this community to permit the hookworm to become as prevalent in this beautiful state as it is to-day in the south. That the situation here to-day is serious is obvious, and the completion of the Panama Canal will doubtless increase the seriousness—therefore the time to act is now.

The practitioner of the West—especially the railroad surgeon—should always keep this disease in mind when dealing with imported labor.

SOME OBSERVATIONS ON SYMPTOMS AND TREATMENT OF SUPPURATIVE APPENDICITIS.*

By ROBERT T. LEGGE, M. D., McCloud, Calif.

Subject accepted for a paper before this society has been so often written about and discussed in the past two decades, that I venture to present it with an apology for its staleness.

When we consider, however, that more than one-half of our laparotomies are performed for appendicitis, I think you will appreciate that it behooves us to keep well in touch with the observations and experiences of our leading surgical clinics.

In country hospitals as well as in city charitable institutions, the surgeon encounters more suppurative appendicitis than he does in private practice; the reason being, of course, due to delays, improper diagnosis, procrastination and the so-called medical treatment of cases.

It has been my experience that many medical men place too much reliance upon the temperature, claiming that if not present or if not high, the pathology is of small importance.

This is a point of great importance and it should be taken into consideration as misleading, as often it is significant of great toxemia, low resisting

power, a well walled off purulent cavity or a recently ruptured one.

The pulse rate is a symptom of tremendous importance, and is likewise not given the attention which it demands. In the patient whose pulse rate is over 110, who has slight abdominal symptoms, with or without nausea for over thirty-six hours from onset beware of complications.

Where the pulse rate is 130 to 140 or more and the general symptoms have abated, the indication of a grave condition is present.

From a prognostic point of view, after a regular appendectomy or a drainage operation, when the pulse rate is high and does not moderate to a near normal one, there is a poor outlook for a recovery. In this condition also, watch for suppurative processes elsewhere; namely, portal infection, liver or subphrenic abscesses or a pleural empyema.

While it is true that the main symptoms, rigidity of the right recti muscles, pain in the right lower quadrant, nausea or vomiting with a history of indigestion or constipation gives us a diagnosis in acute appendicitis, the pulse rate and the laboratory examination of the blood are essential to determine a suppurative variety. As is also a history of an attack of forty-eight hours. A palpable tumor in a delayed case also makes a case clear.

The impulse which impelled me to write this paper was due to the observation of the use of proctoclysis in four cases of acute appendicitis that had been treated medically, and which were then referred to me for operation. These patients all had normal temperatures. Three had pulse rates ranging from 110 to 140. One had a normal pulse rate of 72. All had pain upon pressure over McBurney's region. Three some rigidity of recti muscle. Two had tympanites with ileus present. These patients gave an impression to their medical attendants of convalescing. The period then passed when operation was imperative, was upon the discovery of a mass at McBurney's point, or of tympanites with obstruction of the bowels, with or without fecal vomiting and with general diffuse peritonitis present. These four patients died in from one to nine days after a quick simple drainage incision was made, as all were abscess cases with low grade peritonitis.

My conclusions from these cases are that proctoclysis used to treat appendicitis before operation is absolutely contra indicated, that it masks symptoms whereby the medical man loses sight of the condition of his patient due to a false symptom of improvement, such as morphia given for the relief of pain produces.

The patient's resistance is gone, and consequently surgery and post operative treatment is of little avail. The reasons are plain as the lymphatics are waterlogged and blocked and thereby inactive and incapable to cope with the toxic suppurative mass.

Proctoclysis should be only instituted as one of the holy trinity in post operative treatment. Murphy, 1912, reports 72 consecutive cases of general suppurative peritonitis from all causes, principally appendicitis, with only three fatalities, after a quick operation, and using the upright position, ab-

* Read before the Pacific Association of Railway Surgeons, San Francisco, 1912.

sence of food, and his famous saline drop method introduced per rectum.

Before Fowler introduced his method of sitting the patient in the upright position, and Ochsner and Murphy brought forth their ideas of starvation and salines per rectum the mortality was about 50% in suppurative cases following operation. Today with the ideal treatment it is below 15%.

Fowler in *Journal A. M. A.*, Nov., 1911, gives some interesting statistics worth repetition. All this series were treated in the Fowler or sitting posture. In 194 cases operated on with diffuse septic peritonitis, he had a mortality of 27%. Eighty-three patients received fluids by mouth and anemas of saline, whereby 87% recovered. Thirty-nine patients were given fluids by mouth and no anemas, result, 76% recovered. Fifty-eight patients no fluids by mouth, and proctoclysis, 67% recovered. Nevertheless, as this great authority has had a lower series of recoveries in the last stated method, still it is the consensus of opinion, and the statistics of the leading surgeons of this country prove it to be the ideal method.

In my own series of cases the results have been a mortality of 15% in suppurative appendicitis.

Caution must be observed in over-indulgence in the use of rectal salines in advanced cases of suppurative peritonitis following appendicitis, or the patient's intestinal tract, either due to ileus or lack of absorption is likely to produce a reverse peristalsis, collapse and asphyxiation.

Where large quantities of saline are introduced the tissues and vessels of the intestines become engorged and cyanotic, creating an artificial ascites, edema of lungs, etc., as I witnessed demonstrated by Sloan on dogs at Crile's laboratory.

Proctoclysis as recommended by Murphy instituted directly after operation in suppurative peritonitis following appendicitis or other etiological conditions is the crowning glory of post operative treatment; a surgical triumph which shall immortalize Murphy as a great American for all time to come. It is not advisable to be used, however, as a palliative measure in so-called medical treatment on account of the dangers I have already enumerated.

The operative technic in treating these patients which I consider ideal is as follows: After sterilizing the operative field with half strength tincture of iodine, I advise the McBurney's gridiron incision on account of its proximity to the appendix, and the lessened liability to ventral hernia later.

A point in diagnosis that is valuable to note, is that when an edematous condition in the tissues is found when making the incision, it gives evidence of a pus pocket beneath.

In incising the peritoneum as directed by Judd it is caught by two forceps, the finger should be pushed behind the folds to hold viscera back to prevent injury while the peritoneum is being opened.

It is well to keep wound toilet covered with saline pads to prevent infection of the tissues which are to be sutured later.

Search for the appendix and if it can easily be located, remove the same, inflicting the minimum

amount of manipulation, and perform as quickly as possible.

The diseased appendix should be removed whenever possible, so as to prevent it acting later as an infective agent, which would influence the formation of subphrenic abscess or other pus areas.

As speed is essential for success, the simple ligation of the appendix with its mesentery at its base is quite sufficient. Lemberging the stump is not practicable as the indurated and lymph covered tissues are too friable.

A split rubber tube reaching to stump allows ample drainage in small suppurative or localized pus cavities. If diffuse peritonitis is present an extra drainage tube should be inserted into the pelvis behind the bladder.

The intra abdominal tension forces and liberates the purulent secretions towards the incision in the abdominal wall, facilitating drainage.

The pads at incision are removed, tissues sponged with saline and then iodined. The wound is quickly sutured around drainage tubes, dressings applied and patient returned to bed and placed in the Fowler's position.

Proctoclysis should then be instituted for 48 hours and food withheld for the same length of time.

For the tympanites I have used physostigmine with considerable success. The bowels are moved by castor oil on the third day.

CONCLUSIONS.

1. Plea for early operations, no procrastination permissible.
2. In profound septic cases incision and drainage will suffice as operative means.
3. Proctoclysis only to be used in post operative treatment.
4. Ideal post operative treatment is Fowler's position, padlock on mouth and Murphy's proctoclysis.
5. Temperature is not a reliable guide.
6. The pulse rate is an important one not only in pre-operative diagnosis, but also in post-operative treatment and prognosis.

SOCIETY REPORTS

MONTEREY COUNTY.

The regular meeting of the Monterey County Medical Society was held on Saturday evening, February first, at the handsome new residence of Dr. A. M. Ritchie. Dr. T. C. Edwards, past president of the society, presided. The minutes of the previous meeting were read by Dr. M. T. Crabtree and the regular business of the meeting was transacted.

Dr. E. K. Abbott, of Monterey, presented a very interesting clinical case which was examined and discussed by the medicos, after which an elegant menu was served in the dining room. Two prettily decorated and well laden tables were presided over by the host and hostess. At the larger table were seated Drs. A. M. Ritchie, T. C. Edwards, H. T. Crabtree, William Himmelsbach, W. A. Lillie, E. K. Abbott, D. L. Deal, W. V. Grimes and Martin McAulay, while at another table presided over by Mrs. Ritchie were Drs. H. N. Yates, L. B. Graham and H. E. E. Douglass, with the following young ladies: Miss Guy and Misses Starkhouse.

A delightful season of social conviviality was

spent at the supper tables, and as the guests departed at the midnight hour they expressed their hearty thanks for the gracious hospitality extended by Dr. and Mrs. Ritchie.

SACRAMENTO COUNTY.

At a meeting of the Sacramento Society for Medical Improvement held on January 21st, the following officers were elected for the year 1913: G. L. Stevenson, President; F. E. Shaw, Secretary; G. L. Stevenson, F. E. Shaw, H. L. Nichols, G. A. White and W. A. Briggs, Directors; F. F. Gundrum, two years, G. C. Simmons, one year, and A. M. Henderson, one year, Delegates to State Medical Society; S. E. Simmons, W. E. Briggs and J. W. James, Alternate Delegates to State Medical Society.

EUGENE H. PITTS, Secretary.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

Section on Medicine, January 7, 1913.

1. Demonstration of the Killian Suspension Laryngoscopy, Dr. Henry Horn.

2. Döhle's Cellular Inclusions in Scarlet Fever, Dr. W. T. Cummins.

General Meeting, January 14, 1913.

1. Evolution in the Study of the Heart; a Survey, Dr. H. I. Wiel.

2. Notes on the Anatomy and Physiology of the Heart, Dr. J. B. Frankenheimer.

(To be published in California State Journal of Medicine.) Discussed by Drs. W. W. Kerr, H. D'Arcy Power, H. I. Wiel and H. W. Allen.

3. Auricular Fibrillation, Dr. H. W. Allen. Discussed by Drs. W. W. Kerr, H. D'Arcy Power, H. I. Wiel and H. W. Allen.

Section on Surgery, January 21, 1913.

1. A Case of Hematomyelia, Dr. H. B. Reynolds, Palo Alto.

2. Successful Removal of Intraspinal Tumor, Drs. Harry Sherman and Leo Newmark. (To be published in California State Journal of Medicine.) Discussed by Drs. M. B. Lennon, L. Eloesser, H. Sherman and H. Reynolds.

3. Spasmodic Torticollis; with Notes on the Etiology of Two Cases, Dr. Walter F. Schaller. Discussed by Drs. M. B. Lennon, S. T. Pope, C. B. Macdonald, H. C. McClenahan, L. Eloesser and W. F. Schaller.

Section on Eye, Ear, Nose and Throat, January 28, 1913.

1. Demonstration of Cases, Dr. Cullen Welty.

2. Demonstration of Case of Central Retinal Changes, Dr. M. W. Fredrick. Discussed by Drs. S. J. Hunkin, A. S. Green, L. W. Allen, C. F. Welty and M. W. Fredrick.

3. Review of Italian Special Literature. Dr. Victor Lucchetti. (To be published in California State Journal of Medicine.)

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held at 8:30 p. m. January 31st at the Dameron Hospital. In the absence of President W. J. Young, Dr. Sanderson acted as president. The following members were present: Drs. J. J. Tully, J. D. Dameron, R. B. Knight, S. E. Latta, H. E. Sanderson, H. Smythe, F. P. Clark, D. F. Ray, I. S. Zeimer, Mary Taylor, Minerva Goodman, C. F. English, B. J. Powell, W. Walker, S. B. Swift, B. F. Surryhne, of Modesto; R. K. Barry, of Turlock; S. E. D. Pinniger, of Tracy; A. M. Tower, of Lodi; J. E. Nelson, of Lodi; J. O. Chiappella, of Ripon; C. W. Evans, of Modesto, and R. T. McGurk. Dr. Emil Schmoll of San Francisco was also present and presented one of the papers of the evening.

The minutes of the last meeting were read and approved. The secretary read a copy of the letter sent to five legislators from this and nearby dis-

tricts advising them to support the State Board of Medical Examiners in their efforts to keep up the standard of medical efficiency in this state. Dr. Surryhne moved that the action of the secretary be approved by the society. The motion was seconded by Dr. Clark and carried. The subject of legislation was freely discussed by several of the members and some good ideas were brought out in regard to the state medical examinations.

The committee on admissions reported favorably on the following names and they were declared elected as members of the society: Drs. R. K. Barry, of Turlock; E. R. Brooks, of Riverbank; S. B. Swift and C. F. English, of Stockton.

A paper on "Pancreatitis" was then presented by Dr. Dameron. The subject is an interesting one and keen interest was exhibited by all present. Several valuable and practical points were brought out by Dr. Dameron, which gave stimulus to the discussion which followed. Dr. Dameron's paper was followed by a paper on the same subject by Dr. Emil Schmoll of San Francisco. He gave some valuable points on the differential diagnosis of pancreatitis, and by frequent reference to the pathological and chemical tests made in completing diagnoses, unconsciously emphasized the fact well known to Stockton practitioners, that we need a competent pathologist in this city. Dr. Schmoll being an internist, emphasized the medical viewpoint of pancreatitis. Drs. Evans and Knight followed with further reports of cases and discussion of pancreatitis.

There being no further business, the society adjourned to the dining-room, where a sumptuous repast awaited the members.

R. T. McGURK, Secretary.

SANTA CRUZ COUNTY.

At the meeting of Santa Cruz County Medical Society held January 13, 1913, in Santa Cruz, the following officers were elected for the year 1913: President, A. F. Cowden; First Vice-President, H. G. Watters; Second Vice-President, F. Hart; Secretary-Treasurer, G. P. Tolman; Delegate to State Convention, P. T. Phillips; Alternate, B. H. Bush; Censor for three years, E. E. Porter. Many matters of importance were discussed and acted on. A new fee bill was adopted. Refreshments.

G. P. Tolman, Secretary.

FEE BILL.

Adopted by the Santa Cruz County Medical Society, January 13, 1913.

Prescription or advice, at office.....	\$ 1.50
General examination, at office (including urinalysis or blood examination).....	5.00
Gynecological examination or treatment.....	2.50
Veneral treatments	2.50
Vaccination	2.00
Day visits in town.....	2.50
Day visits, country, add to town fee, per mile	1.00
Night visits, in town (10 a. m. to 7 a. m.)....	5.00
Each additional patient in same family, extra	1.50
Consultation, each physician (consultant to be paid at time of consultation).....	10.00
Attendance on diphtheria, scarlet fever, smallpox, etc.	5.00
Anesthesia	5.00 to 20.00
Post mortem examination.....	25.00
Assistant at operation, 10 per cent. of fee.	
Minimum fee	10.00
Minor operations requiring general anesthetic	25.00
Tonsils and adenoids removed.....	50.00
Either one separately.....	25.00
Major operations, not less than.....	250.00
Ordinary confinement	25.00
Instrumental delivery	50.00 up
Urinanalysis	5.00

SANTA BARBARA COUNTY.

The Santa Barbara County Medical Society met in regular session last Monday, February 10, 1913, at the Arlington Hotel. Present: Drs. Bakewell, Barry, R. Brown, Low, Wells, C. S. Stoddard.

The subjects discussed were Tonsillar Anatomy and the Lingual Tonsil. The importance of the tonsillar bodies, as many diseases of the lungs and glandular system may have their origin in the tonsil. They also discussed the peculiar types of la grippe prevalent this season. A letter was read from the State Secretary, in which he spoke of visiting our Society some time during the spring or summer; this was heartily endorsed by the members present. The Society adjourned to meet at the same hotel in March. The regular meeting will probably be preceded by a social dinner at the hotel.

The annual meeting for election of officers was recently held at the residence of Dr. Rexwald Brown and with the following results:

President, Dr. T. Albion Stoddard, Santa Barbara; Vice-President, Dr. Samuel P. Low, Santa Barbara; Vice-President at Large, Dr. Lambert B. Coblentz, Santa Maria; Secretary-Treasurer, Dr. William T. Barry, Santa Barbara; Delegate (hold over), Dr. David A. Conrad, Santa Barbara.

President Dr. T. A. Stoddard named the following committees for 1913 (first named in each case being chairman of committee): Program and Scientific Work—Drs. W. T. Barry, R. Brown, Geo. S. Wells; Censors—Drs. C. S. Stoddard, B. Bakewell, W. B. Cunnane; Public Health and Legislation—Drs. R. Brown, D. A. Conrad, W. T. Barry; Auditing Committee—Drs. B. Bakewell, S. P. Low, H. Sidebotham.

The monthly meetings will be taken up with due regularity and rigor. The members are confident of good results, and are specially desirous of visits from fellow members in other counties.

WILLIAM T. BARRY, Secretary.

YOLO COUNTY.

On Tuesday evening, February 4th, Dr. and Mrs. Fred R. Fairchild entertained the medical society in a very charming manner at their own home. The doctor read a paper on "Diagnoses of Atypical Appendicular Troubles" which was much appreciated and followed by discussion by the members.

FRANCES LOUISE NEWTON,
Secretary.

CALIFORNIA ACADEMY OF MEDICINE.

At the regular meeting of the Academy on January 27th, the following scientific program was given:

1. Word Values—A Suggestion, Harry Sherman. Discussed by L. Eloesser, W. I. Terry, D. Tait, J. T. Watkins, G. E. Ebricht, R. Russ, M. L. Emerson and H. Sherman.

2. Intratracheal Insufflation Anesthesia, Saxton Pope. Discussed by W. I. Terry, D. Tait, L. W. Allen, M. Kavanagh, R. Russ, E. Williams, L. Eloesser and S. Pope.

Refreshments were served at the close of the meeting.

COOPER CLINICAL SOCIETY.

A meeting of the Cooper Clinical Society was held on the evening of Monday, February 3d, at the Medical Department of Stanford University. The following program was given:

1. Presentation of Case of Polycythemia, Dr. W. W. Boardman. Discussed by Drs. Thomas Addis, W. F. Cheney, M. Abrahamson, Harry E. Alderson, and W. W. Boardman.

2. Case of Reynaud's Disease, Dr. L. S. Mace. Discussed by Drs. H. C. McClenahan, W. F. Schaller and L. S. Mace.

3. Abscess of Liver, Dr. Lovell Langstroth.

Discussed by Drs. Stanley Stillman, E. C. Dickson, R. L. Wilbur, H. R. Oliver, S. O. Beasley, L. Eloesser and E. D. Downing.

4. Primary Carcinoma of Liver, Dr. P. H. Luttrell; Diabète Bronzé, Dr. Thomas Addis; with presentation of specimens. Discussed by Drs. Stanley Stillman, W. Ophuls, W. F. Cheney, T. Addis, E. C. Dickson, E. D. Downing and P. H. Luttrell.

Refreshments were served at the close of the meeting.

POPULAR LECTURES.

Thirty-first course of Popular Medical Lectures in Lane Hall, north side of Sacramento street, near Webster, on alternate Friday evenings at eight o'clock sharp.

Program.

March 7, 1913—Dr. L. Eloesser, "Grafts and Transplantations of Human Tissue."

March 21, 1913—Capt. Jas. L. Bovans, U. S. Army, "The Work of the Medical Department of the U. S. Army on the Firing Line." (Illustrated.)

April 4, 1913—Dr. H. E. Alderson, "Some Skin Diseases We Need Not Have." (Illustrated.)

April 18, 1913—Dr. R. G. Brodrick, Health Officer of San Francisco, "The Work and Aims of Our Health Department." (Illustrated.)

MEMBERSHIP OF COUNTY SOCIETIES.

	1906	1912
Alameda	121	216
Butte	14	22
Contra Costa	21	20
Fresno	56	63
Humboldt	35	33
Kern	12	22
Kings	6
Los Angeles	348	600
Marin	14	16
Mendocino	12	8
Merced	10
Monterey	23	20
Napa	18	19
Orange	24	31
Placer	20	25
Riverside	21	30
Sacramento	55	70
San Benito	9	3
San Bernardino	35	37
San Diego	39	85
San Francisco	540	554
San Joaquin	41	69
San Luis Obispo	11	14
San Mateo	7	16
Santa Barbara	28	21
Santa Clara	88	83
Santa Cruz	21	26
Shasta	30	30
Solano	19	8
Sonoma	48	47
Tehama	9	8
Tulare	26
Tuolumne	13	8
Ventura	12	10
Yolo	17	17
Yuba-Sutter	10	11
	1777	2278

AUDIT OF THE BUSINESS OF THE SOCIETY FOR 1912 AND A GENERAL ANALYSIS OF THE BUSINESS FOR THE PAST SEVEN YEARS.

In order that the members of the Society, and particularly the delegates, may be informed as to the condition of the affairs of the Society in advance of the annual meeting at Oakland in April, the following statement has been prepared for publication in the JOURNAL. Prior to 1905 the accounts were kept from an indeterminate date in April of one year to a similar date in April of the next year; and furthermore, they were not audited by a regular accountant. All of these old accounts were destroyed in the fire of 1906 excepting a memorandum of receipts from the JOURNAL advertising.

At the meeting of 1905, on the recommendation of the Secretary, Dr. Jones, the fiscal year was changed to correspond with the calendar year, all books and accounts were ordered closed December 31st of each year and a certified public accountant was authorized to audit the accounts in place of the old auditing committee consisting of members who generally had little skill as auditors. All the auditor's reports from and including 1906 were saved, and it is therefore possible to present an analysis of the affairs of the Society for seven years, from 1906 to 1912, inclusive.

We first present for your consideration the report of the auditor for 1912. The most noticeable thing in the report is the very large increase in "Society or General Expense"; under this heading the cost of legal work in conducting our Medical Defense is included, and as has been pointed out in the JOURNAL several times, the volume of that work increased very greatly in 1912 and promises to increase still further in 1913. * Full details in regard to this item will be presented to the delegates, but for obvious business reasons will not be published. There will also be noticed a decided increase in the receipts from JOURNAL advertising; this increase is in no small part due to the energetic work of the Chairman of the Advertising Committee, Dr. R. E. Bering.

It will be seen that in spite of the fact that our earnings increased \$1,522.16 over the previous year, 1911, our expenses, mostly for legal work, increased more rapidly and our cash reserve was decreased by \$281.72.

San Francisco, Cal., Jan. 15th, 1913.
Medical Society of the State of California,
San Francisco, Calif.

Gentlemen: We have audited the accounts of the Medical Society of the State of California for the year 1912, and we annex hereto analysis of Cash Receipts and Cash Disbursements for the year, showing totals by months.

The balance with the Union Trust Co. of San Francisco at Dec. 31st, 1912, amounting to \$1558.15, has been verified. The volume of bank transactions for the year was as follows:

Jan. 1st, 1912 -Balance.....	\$ 1,839.87
Deposited during 1912 per statement of Cash Receipts.....	17,241.19
	<u>\$19,081.06</u>

Less Checks drawn during 1912 per statement Cash Disbursements..... 17,522.91 |

Dec. 31st, 1912. Balance in Bank..... \$ 1,558.15 |

The statement of the Union Trust Co. of San Francisco shows a balance as at Dec. 31st, 1912, according to their books of

	\$1820.15
From this must be deducted, Checks unpaid at Dec. 31st, 1912:	
No. 1183.....	\$222.00
No. 1184.....	40.00
	262.00
Balance	<u>\$1558.15</u>

which agrees with the foregoing figures.

Summary of Accounts for 1912.

Receipts.	
County Societies.....	\$ 6970.00
Subs. to Journal.....	2391.80
Sales of Register.....	149.40
Ads. in Register.....	1050.85
Ads. in Journal.....	6299.05
Rent	180.00
Miscellaneous	200.09
Excess Disbts.....	281.72

\$17522.91

Disbursements.

Journal expenses.....	\$ 4647.12
Register expenses.....	1140.57
Society or Gen'l Ex.....	993.92
Society or Gen'l Ex.....	3242.87
Salaries	6650.00
Office expense.....	671.38
Furniture	31.05
Miscellaneous	146.60

\$17522.91

The financial position of the Society as at December 31st, 1912, was as follows:

ASSETS.

Cash.

Union Trust Co.....	\$1558.15
On hand.....	200.00
	<u>\$1758.15</u>

Accounts Receivable.

Journal Advertising.....	\$356.67
Register Advertising.....	278.50
Furniture and Fixtures.....	750.00
	<u>\$3143.32</u>

LIABILITIES.

Accounts Payable.

Rynerson Distributing Co.....	\$20.62
The James H. Barry Co.....	36.00
Stratton, Kaufman & Torchiana.....	80.95
	<u>\$ 137.57</u>

Net Assets..... \$3005.75 |

We are, gentlemen,

Yours very truly,

McLAREN, GOODE & Co.,

Certified Public Accountants.

SUMMARY OF ALL BUSINESS TO THE END OF 1912.

JOURNAL. As already mentioned, the only figures relating to the JOURNAL prior to 1906 are the receipts. In 1907 a considerable sum was paid on advertising commissions which should have been paid in 1906, so the expenses for that year are unduly large. In 1911 the size of the JOURNAL was increased and again in 1912, which fact, together with some other miscellaneous improvements, raised the cost. There is a little irregularity in the figures of the early years, for in some

years the subscriptions to the JOURNAL were included with receipts from advertising; the general amounts, however, may be considered accurate. No credit of subscriptions from members and no charge for rent, office, salaries, etc., are included.

Year	Journal Advertising	Journal Expense	Journal Profits
1903	\$1461.19		
1904	4017.28		
1905	5907.04		
1906	5454.70	\$3706.08	\$1748.62
1907	5880.02	4863.82	1016.20
1908	4552.14	3670.52	881.62
1909	4429.21	3667.00	762.21
1910	4764.51	3250.44	1514.07
1911	5598.99	4147.86	1451.13
1912	6299.05	4647.12	1651.93
			\$9025.78

Register. From 1906 to 1909 the Register and Directory was published under contract with the Society by an outside party and the Society neither made nor lost money on it nor did the figures relating to it pass through our books. In 1910 the publication of the Register was again taken into our hands. The receipts and expenses for the three years will be found below. If the book can be made to pay for the paper and printing of it, we feel that we should be satisfied. The edition for 1910 shows a loss of \$152.95, which is accounted for by the cost of the legal work in defending the Society's copyright to the book. The two succeeding years, taken together, show a loss of \$1, which is quite satisfactory.

Year	Receipts	Expenses
1910	\$1273.00	\$1425.95
1911	1060.90	1121.58
1912	1200.25	1140.57

Total Receipts and Expenses. The following table sets forth the total receipts and expenses of all sorts for the eight years preceding and including 1912 and a few words of historical explanation may not be out of place. In 1905 we borrowed \$2000 at 6% for three years; this was used in the same year to take up our floating debt and enable us to pay cash for our supplies and get better rates and discounts which, altogether, effected a saving of more than 20%. In 1909 this note was taken up by issuing 20, one hundred dollar notes which, in turn, were taken up in 1910 and 1911, being paid for out of our regular income. In 1910 an additional assessment of \$1 per member per year for three years, ending 1912, was voted; this was for the purpose of taking care of the cost of our Medical Defense. The cost of this work more than doubled in 1912 and, as already mentioned, promises to be very much greater in 1913. It is the large increase in this one item of expense that accounts for our loss in 1912 which occurred in spite of the large increase in receipts for that year.

All of our accounts, vouchers, canceled checks, etc., since May, 1905, are intact and in the safe deposit; they have all been audited each year by certified public accountants who are responsible for the accuracy of their audit. In this statement we have not gone into many burdensome details, but it may be said that no matter of expense has been undertaken without consideration and sanction by the Council and that not a dollar of money has

been paid out until after the charge has been investigated and approved in writing by the auditing committee of the Council.

Year	Receipts	Expenses	Gain	Loss
1905	\$ 8,791.34	\$ 8,524.40	\$ 266.94	
1906	10,634.99	11,085.55		\$ 450.56
1907	11,745.23	11,311.05	434.18	
1908	10,238.94	10,669.68		430.74
1909	12,670.01	12,084.06	585.95	
1910	14,147.27	13,919.13	228.14	
1911	15,719.03	14,241.13	1,477.90	
1912	17,241.19	17,522.91		281.72

Totals \$101,188.00 \$99,357.91 \$2,993.11 \$1,163.02

Net gain 8 yrs. \$1830.09

Plus Loans repaid, 1910. 2000.00

\$3830.09

C. G. KENYON,
Chairman of the Council.

PHILIP MILLS JONES,
Secretary.

BOOK REVIEWS

Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. December, 1912. Vol. I, No. 6. Published by W. B. Saunders Co., Philadelphia and London.

Contents: Carcinoma of the Breast (with a talk by Prof. R. Bastianelli, of Rome, Italy); Improvements in the Treatment of Malignant Tumors with Radio-active Substances (by Albert Caan, M. D.); Salpingitis—Pelvic Infection; Metastatic Gonorrheal Arthritis of the Knee; Ankylosis of Elbow—Arthroplasty; Fracture of the Patella; Ununited Fracture of Femur; Fracture of the Internal Semilunar Cartilage; Splitting Fracture of the Anterior Half of the Lower End of the Tibia; Ununited Fracture of the Humerus; Tenoplasty for Obstetric Palsy; Ankylosis of the Temporomaxillary Joints; Comment on Cases Previously Operated On; Index to Volume I.

Golden Rule of Surgery. By A. C. Bernays, 2d Edition, revised by W. T. Coughlin. Octavo, cloth, pp. 280. C. V. Mosby Co., St. Louis, publishers.

A collection of surgical maxims, most of them incontestably true, many of them helpful. The book seems to be of use; the preface says a large first edition was exhausted. It is difficult to see, however, just what class of readers would be benefited by such a collection of short apodictical statements. Students would certainly not—the book gives neither why nor wherefore, nor does it present any problems for solution. The surgeon would not find much in it to aid him. The general practitioner, internes and surgical beginners might turn to these maxims before undertaking the care of a surgical case and find reminders here of facts they should have known before.

Some of the statements are very dogmatic—why for instance the use of digitalis and morphine is disparaged on the ground that they are "poisons" while the use of adrenalin is recommended is difficult to understand. L. E.

The Surgical Diseases of Children, by Wm. Francis Campbell, A. B., M. D., and Le Grand Kerr, M. D. Published by D. Appleton & Co., 1912.

This book is dedicated to the family physician, upon whose conscientious care and devotion to human welfare depends the efficiency of future men and women.

Under the section of General Considerations come some of the best ideas in the book. It deals with the expression of disease in a child; the examination; history taking; securing the child's confidence; general posture; the gait; pain; surgical significance of pain in all its expressions; its oc-

currence in different functions; its manifold character and its interpretation. This part of the work is particularly well developed and of great practical service. It tells what usually is only learned through the finer understanding and study of child life in its morbid state, and upon which depends the successful comprehension of their peculiar expressions of disease.

The chapters which follow, taking up the subjects of special examination, methods of procedure, preparation for operation, anesthetics, shock, sleep, feeding, etc., all are to the point and useful. The remainder of the book, some 600 pages, is devoted to those diseases of children which in any way might be considered surgical. The attitude of the writers is commendable in that everywhere the discovery of disease amid its vari-colored symptoms and dissembling phases is the dominant theme, their treatment in major cases is more suggestive than explicit. But this is as it should be in a work of this kind. It does not shirk detail where this might be directly the concern of the family physician. Its careful delineation of the proper treatment of orthopedic cases is excellent and concise.

It is not considered good taste to pass a book in review without dragging forth its short-comings showing its lack of progressive accuracy, picking out its typographical errors and differing with its conclusion; but in the present volume, possibly this will be pardoned because of the exceptionally good performance of the authors—in fact, we may even part with the compliment that the index and illustrations are very good.

S. T. P.

Pathfinder in Medicine, by Victor Robinson. Published by Medical Review of Reviews, New York, 1912.

This addition to biographical literature consists of a series of fifteen essays, each essay devoted to a phase of historical development of the medical sciences as exemplified by the work of one man. The essays are arranged in chronological order, beginning with "Galen and Greek Medicine," passing next to "Aretaeus, the Forgotten Physician," "Paracelsus, Iconoclast of Medicine," "Servetus, the Medical Martyr," then Vesalius, Pare, Scheele and Cavendish, the chemists, John Hunter, Jenner, Laennec, Simpson, Semmelweis, Schleid and Schwann, and finally "Darwin, Saint of Science."

The author could not attempt within the limits of the work to accord each biography more than the salient facts, but with remarkable ingenuity he has managed to present much without cramming the subject matter. The method of treatment is as unusual as it is entertaining, due partly to the author's combined gift of imagination and versatility. Frequent allusions, occasional digressions and humorous sallies, always in good taste, convey a certain buoyancy to the text and hold the reader's interest. In places the author actually soars aloft in the realms of poetic fancy, imparting a delightful charm to his imagery. The introduction to the life of Servetus reads like a page from a Spanish romance. The account of Vesalius commences with some poetic reflections upon night and darkness, then:

"Alas! that some should wish the night to cover deeds that daylight must not see. Hark, why are the footsteps of that fellow as silent as his shadow? If he had the wings of the bat he could not sail more noiselessly through the air. The furred cat could learn from him the soundless tread. To the end of the town he walks, and e'en when the watchful dogs bark aloud he is as quiet as the swinging carcass of the convict that hangs moldering on the gibbet. Ah! save us, Virgin Mary, for thither is he bound. Stealthily he climbs the slippery steps and steals the corpse. (The moon looks calmly at his pale face.) Oh, ye blessed saints, protect us from his evil eye—it is the same youth

that last week robbed the charnel house and dug the dead from their graves!"

Thus by the use of high color in description and a feeling of warm human though critical sympathy with the past, Robinson has been able to lend a vividness of portrayal that imparts life to his characters. One seems to lose the compelling sense of time and live again with them.

As readers' tastes differ, it would be difficult to decide which is the best of the essays. They are all excellent. Abraham Jacobi states in the introduction that "the facts as related are absolutely correct." What unfavorable criticism might be offered would detract but little from the general worth of the book. One can read it with a sustained and alluring interest from cover to cover and feel on completing it that much information presented in an engaging and original literary style had been derived from its pages.

M. S.

A Manual of Personal Hygiene. Edited by Walter L. Pyle, A. M., M. D. Published by W. B. Saunders & Co., Philadelphia & London, 1912. Fifth Edition.

While the trained man requires no such compendium as this popular little work in his library, there is a distinct and large field of usefulness for just such a clear, concise and simple reference book. In such language as is easily understood by the educated laity the rudiments of the anatomy and essential physiology of the organs discussed are set forth. Succeeding there is a fairly comprehensive discussion of the methods and procedures for the preservation of these organs at their normal efficiency. The field covered includes: The digestive apparatus; skin and appendages; vocal and respiratory apparatus; the ear; the eye; brain and nervous system. The chapter on physical exercise takes up muscle and muscle-nerve physiology and gives most of the simpler, approved forms of gymnastics and athletics. Orthopedics is the keynote of Dr. Goldthwaite's chapter on body posture. Domestic hygiene covers very adequately the institution and maintenance of the physical surroundings necessitated by our community existence. Dr. Wiley is represented by a chapter on Food Adulteration and Deterioration, which includes simple methods of caring for foods and detecting changes due to adulteration and deterioration. A chapter entitled Appendix concerns itself with pulse, temperature, respiration, baths of all kinds, massage, emergency treatment in cases of poisoning and other accidents. It is an admirable book for nurses, teachers, sociological workers, etc., and also is a decidedly more reliable household vade mecum than the legion of so-called "doctor's books" that flaunt their misinformation from the book shelves of the laity. And, again, for those of us who are not gifted with the ability of a Woods Hutchinson to impart to the laity complex medical information in a "words-of-one-syllable" style, this book may often be of great assistance to explain or answer the thousand and one questions that the patient is capable of hurling at his omniscient medical attendant.

G. H. T.

DR. J. S. POTTS.

Died February 9, 1913.

The following, in appreciation of Dr. Potts, has been contributed by "a friend":

"One by one we pass over the bar, leaving our footsteps upon the sands of time. When we leave such footprints behind us as our old friend and physician, Dr. J. S. Potts, has left, we can depart in peace. His hands, his purse, his skill, were always at the service of the needy. He had a kindly welcome for the stranger, a cheering word for the unhappy and to one and all a helpful hand. A rarely generous man to his friends—and not only to his friends, but to the community in which he

lived—he was always ready to give of his time and money for the public good.

"He was one of the originators of the board of trade in San Jose; also one of the first to see the benefit a first-class hotel would be to this community and it was his money and energy that was so helpful in establishing Hotel Vendome in San Jose. As president of the Hotel Vendome company, he was assiduous in making the new venture a success.

"In 1880 he visited Europe, spending much time in the study of his profession in the best hospitals of Edinburgh, London, Dublin, Paris, Berlin and Vienna. Returning to San Jose as his chosen home, he was for many years the leading physician here.

"There are many hearts in San Jose to mourn the loss of so good a friend."—San Jose Mercury.

AN APPRECIATION.

We have known him and truly we have loved him; now we reverence his memory. The medical profession of the world honors him for his unusual and brilliant understanding of the wonder-workings of the heart in health and in disease. We are proud of this. We honor him for his subtle understanding of humanity; his spending of



Dr. George Alexander Gibson.

strength for our good; his consideration; his courteous urbanity; his deep devotion to all the virtues of our profession; his open sincerity, and for his stainless reputation.

His charity and his learning have brought him "such strong renown as time will ne'er decay."

WILLIAM WATT KERR,
CHARLES MINER COOPER,
JAMES EAVES,
THOMAS ADDIS,
J. WILSON SHIELDS.

NEWS NOTES FROM NEWSPAPERS.

Fresno is to have another hospital to be built by Dr. Sample.

Auburn is to have a sanitarium to be built by Mrs. Nellie Firth.

At Grass Valley, trichinosis has made its appearance in an Italian family.

Chico had a number of cases of smallpox during the early part of February.

Dr. W. E. Coppedge has been appointed county health officer of Modoc county.

Monrovia has appointed Dr. A. Hostetter health officer to succeed Dr. C. D. Gaylord.

Dr. R. B. Knight, of Stockton, has been appointed on the lunacy board to succeed Dr. J. P. Hull.

At San Jose, Dr. George H. Evans gave an address on the subject of tuberculosis on February 1.

Bakersfield was treated to a lecture on foods and poisons by Dr. Wm. Ophuls in the latter part of January.

The German hospital, San Francisco, has been sued for \$25,000 because of the death of a boy from rabies.

Sonoma county hospital admitted 355 patients during the past year and cared for them at a cost of \$31,777.96.

Dr. George W. Burk of Sisson was acquitted of the charge of violating the quarantine regulations after a jury trial.

At San Jose, Dr. D. R. Wilson has been appointed superintendent of the county hospital, to succeed Dr. Jonas Clark.

Another cure for cancer has been discovered. This time it has St. Ignatius College, San Francisco, as its habitat.

Oakland supervisors—or rather, Alameda county supervisors—have allotted one million dollars for the new county infirmary.

The new building of the Pomona Valley Hospital Association was recently started and the cornerstone was laid February 7.

Dr. M. R. Glover, of the Public Health Service, has gone to Tulare county to investigate the reported epidemic of trachoma.

Pasadena has a school dental clinic for caring for the teeth of its poor children that has proved to be of the greatest benefit.

In Colorado the legislature would compel any surgeon who takes out an appendix to prove that it is diseased or suffer a penalty.

Dr. Samuel Weiss was sentenced to four months in jail and a fine of \$100 for sending an indecent letter to an actress at a cheap theatre.

O. C. Joslen tried for two years or more to compel the Board of Medical Examiners to restore his license, but finally the court threw it out.

Dr. Minerva Goodman, medical inspector in the Stockton schools, reports that about 90 per cent. of the pupils have teeth that need attention.

Dr. W. K. Sanborn had to have his leg amputated as a result of an injury received while playing football, according to the Oakland Tribune.

Dr. E. G. Goodrich, not a member of the State Society, was the victim of a \$3,000 verdict in a suit against him for alleged malpractice, January 31.

Berkeley's city auditor was one of the smallpox victims and his office was closed and vaccinated; nearly all the city officials were also vaccinated.

San Diego County Medical Society had its annual dinner on January 16th and the older resident physicians recited their hard luck stories of early days.

Fresno county has appointed Dr. Guy Manson health officer, to take the place of Dr. T. N. Sample, resigned, who has held the office for eight years.

Dr. R. B. Dempsey delivered a lecture on tuberculosis at Vallejo, under the auspices of the brotherhood of the Presbyterian church, on February 4.

The Fresno county hospital is to adopt some of the suggestions made by the County Medical So-

ciety: this is excellent and all counties should do the same thing.

The Good Samaritan Association has purchased the Columbia hospital, at Los Angeles, and thus enlarged its usefulness materially. It is an Episcopalian institution.

Dr. Mays, of Sausalito, formerly and for several years a councillor of the State Society, was operated on for appendicitis and for some trouble with his knee on February 6.

Dr. Madeline E. Johns, San Francisco, was murderously attacked by an angry janitor of the Head building, where she has offices, and was almost killed. The man committed suicide.

Dr. I. D. Webster has been appointed county health officer of San Diego, and the County Medical Society will cooperate with him in furnishing medical attendance at the county hospital; a good move.

On January 31st there were 862 patients in the Los Angeles county hospital, and it is stated that within a year the new hospital building will be inadequate to accommodate the patients that will have to be cared for.

In Washington a court has ruled that a corporation has no right to practice medicine and therefore is unable to collect a bill for medical services. It was a case where "Dr. Cook & Co." has sued some poor unfortunate.

Mr. H. T. Morrow, of Los Angeles, made an address before the Commonwealth Club of San Francisco, on February 15, on the subject of proposed medical legislation and the danger of reducing standards of required education.

It is said that a Dr. Klemperer has recovered a strain of the live tubercle bacilli used by Friedmann in his "cure" and has grown them successfully. He extracted some from a patient shortly after Friedmann had injected them.

At Salinas the Jim Bardin hospital has been reopened, but Mr. Bardin states that he will no longer run it at a loss, and that if the doctors do not send enough patients there to keep it on a self-paying basis he will close it up for good and all.

The bill requiring a medical certificate before a marriage license is issued is creating a good deal of discussion at Sacramento and the newspapers comment upon the frankness of the language used; it would be well if the papers would be as frank.

Berkeley has had a few more cases of smallpox, but the epidemic seems to have been stopped; a couple of hundred persons are being vaccinated daily by the health authorities. All the school teachers in Oakland and Berkeley have been vaccinated.

An outrageous suit has been filed against Dr. E. R. Bryant, San Francisco, because he did not respond to a call to attend a former patient when he himself was ill. This would look like plain blackmail and of course he will win the suit if it is ever tried.

AN ENCOURAGING CASE.

In the Superior Court of the State of California, in and for the County of Alameda.

Department No. 5.

Before Hon. William S. Wells, Judge.

THE PEOPLE OF THE STATE OF CALIFORNIA,	Plaintiff,	No. 5343.
vs.		
C. HILLERY YOUNG,	Defendant.	

Oakland, Cal., Tuesday, January 21, 1913.

Proceedings.

The Court: The People against C. Hillery Young.

Mr. Wright (Assistant Probation Officer): This

matter was referred to the Probation Officer, your Honor, and the report has been prepared, and copies given. The defendant has read it, and I would ask him if there are mistakes.

The Defendant: I didn't notice any.

Mr. Wright: I will state, your Honor, that there were, as the report shows, fifty or sixty letters received, and many letters speaking very highly of this treatment, but I didn't quote all those letters in the report; I just quoted one or two, and made the general statement that the balance of them spoke highly of the treatment.

The Court: Didn't I see the special prosecutor for the Medical Board here a few minutes ago?

Mr. Smith (Deputy District Attorney): Yes, your Honor.

The Court: I would like him to come into court; I would like to ask him some questions.

Mr. Smith: There is one mistake in this report. It stated that the defendant plead guilty to felony. It is a misdemeanor; he did not plead guilty to felony.

Mr. Van Hovenberg (representing the defendant): I presume the Court is aware of the fact that the court in Berkeley, the Police Court, has no jurisdiction in these cases.

The Court: Who was this prosecution instituted by; by this doctor in San Francisco that runs the sanitarium, wasn't it?

Mr. A. S. Frost: There were two reports that were forwarded to Mr. Taggart, I believe.

The Court: Well, now, do you people hold that if I have got a remedy like Acmes Alternative, which I say is good for consumption, if I recommend it to Mr. Hynes, that I am guilty of practicing medicine without a license?

Mr. Frost: Oh, no.

The Court: Well, that is about what this case is, as it looks to me. I think the State Medical Board would be in a good deal better business than prosecuting this kind of cases myself. Now, that is the way I look at it. If a man has got anything that is good for consumption, or if he thinks it is good for consumption, the medical fraternity has not found anything that is worth much for it, and it ought to be tried, and I think you people are in mighty poor business trying to prosecute men for simply recommending these things. He hasn't said he was a physician, he hasn't told anybody he was a doctor; in fact, he has particularly said he was not, but he simply has a remedy, like everybody, including every old housewife used to have, and he advises people to use it. Now, that is what it looks like to me, and I think you are in mighty poor business prosecuting these cases.

Mr. Frost: Has your Honor read the transcript?

The Court: Yes, I have read the transcript.

Mr. Frost: Well, your Honor, I don't agree with your Honor about what the facts are.

The Court: I know you don't; I know you don't agree with me on this prosecution.

Mr. Frost: If your Honor desires to hear from me, I will be glad to state what I consider the facts in the case.

The Court: Well, I have read the transcript; I know what the facts in the case are. This man may be placed on probation for the period—

Mr. Hynes (District Attorney): Just a moment. I understand from Mr. Smith that the testimony showed that this man had cards printed as a specialist.

Mr. Frost: Yes, and he had an office.

The Court: I don't think that is practicing medicine.

Mr. Frost: And he collected fees for it.

The Court: Of course he would have a right to collect fees. Every drug store sells a specific and collects fees for it, don't they?

Mr. Frost: Yes, you go in and ask for a particular drug, they have a right to sell it; but this man prescribed his own remedy. The person he

went to didn't know anything about the remedy, and he prescribed it.

Mr. Hynes: If the Court please, I have not read the transcript in this particular case, but the viciousness of this particular kind of thing, if there is any, it seems to me might appear in this, that if a man is permitted to do this sort of thing and prescribe these kinds of remedies, there is no reason why a man like Bohannas can't prescribe medicines for cancer, and things of that sort.

The Court: Well, you have fixed it up so he can.

Mr. Hynes: I have tried to get him a number of years.

Mr. Frost: Just a moment. I am informed by Mr. Taggart that the case was reported through the Berkeley Police Department to Dr. Betten, the health officer there, and that Dr. Betten reported it to him, to the State Board of Medical Examiners.

Mr. Hynes: We haven't any objection to the man being placed on probation, if the Court please, but we were under the impression that one of the conditions of his probation should be that he ought not to prepare and sell these medicines.

Mr. Frost: Ought not to prescribe them.

Mr. Hynes: Ought not to prescribe them anyhow.

Mr. Frost: There are no objections to his selling them at all, but if he prescribes them, or in any way holds himself out as competent to practice medicine, why then he is practicing medicine under the definition as given by our Supreme Court. I don't think he ought to be permitted to do that.

The Court: Well, he may be placed on probation for the period of three months. There are so many apparently reputable physicians in this State—I won't say reputable physicians, but physicians that have got a certificate—who have no business to practice medicine, that if the Board would devote their attention to them, I think they would do a good deal more good. They are like some lawyers that have no business to be practicing at all.

DR. FRIEDMANN'S TUBERCULOSIS REMEDY.

By FRED I. LACKENBACH.

From the highly sensational accounts in the lay press, of this new "cure" for tuberculosis, one is strongly tempted to dismiss the subject without essaying to dissect out the kernel of truth which undoubtedly gives credence to Dr. Friedmann's discovery.

It would appear from a critical analysis of the reports at hand, that Dr. Friedmann has applied an old and established principle, and his main departure from methods commonly employed in the production of artificial immunity against the tubercle bacillus and its toxins, is the employment of a cold-blooded animal—the turtle—as a means of depriving the bacillus of its virulence without impairing its capacity as an immunizing agent. By just what means this is accomplished, Dr. Friedmann has not made known.

Since Dr. Robert Koch introduced his original tuberculin in 1890, a great many attempts have been made to modify the toxicity of the immunizing agent. There are at present in use a large number of preparations which are modifications of Koch's original Tuberculin ("O. T."), or suspensions of the cell substance, as Tubercle Residue and Bacillen Emulsion. These latter are essentially bacterial vaccines. In practically all of these preparations the unaltered bacillus or its toxin is the groundwork. The type of tuberculin arises from the different manipulations of these elementary substances.

The object aimed at in the employment of these

various cell, or bacterial cell derivatives, is to produce a maximum of immunity against the tubercle bacillus and its toxins, with a minimum of toxic reaction. The toxicity of these products and the severe reactions arising from their employment has necessitated their employment in very moderate dosage. As a consequence the process of immunization proceeds very slowly.

It would appear that Dr. Friedmann employs for immunization purposes, live, instead of dead bacilli, these live organisms by cultural processes being deprived of their virulence, and are at the same time capable of producing a powerful immunizing response when inoculated into tuberculous human beings.

In vaccination against smallpox, the virus is attenuated (made less virulent) by passage through the calf. In immunizing against hydrophobia, the virus is attenuated by drying over potassium hydroxide. Live cultures of the bacillus typhosus are said to yield a better immunizing response than the employment of the devitalized bacteria. Attenuated cultures of the B. anthracis are employed for vaccinating cattle against anthrax.

To quote from Dr. Friedmann's paper read before the Berlin Medical Society, November 6, 1912: "The remedies recommended by Koch himself, as well as the numerous other preparations which are derived from a culture of the tubercle bacillus, are based on the right principle and have a similar action. For the true recognition of the fact that the antigens are contained in the exciting agent itself, has been for some time the basis of all therapeutic researches in tuberculosis.

"It has been tried to produce the active substances of the bacillus in the pure state by the most varied methods . . . in all the various methods used in the preparation of curative agents up to the present time, virulent strongly toxic-acting bacilli of either human tuberculosis or cattle tuberculosis have been the starting point. These, in spite of all endeavors to remove their poisonous properties through special procedures had the power naturally of causing considerable damage, or at least danger to the organism.

"Furthermore, through these energetic measures the exceedingly delicate antigens, i. e., the things which are able to form the specific antibodies, were damaged. Hence the task was to find as a curative a substance absolutely harmless even in large doses, which should contain, if possible, all the specific properties of the exciting agent, excepting its toxicity and virulence.

"This then had to be an avirulent atoxic bacillus, but this avirulence, this freedom from all pathogenic power, could not be attained through any severe treatment of the cultures through various additions, etc.; it had to be a bacillus of natural avirulence and moreover it had to be avirulent and atoxic in tuberculosis, as well as in non-tuberculosis individuals. And finally the exceedingly delicate antigens could not be affected by the slightest treatment; hence it had been a living bacillus. For even the apparently mildest methods of killing the bacillus affected the finest molecular constitution of its organism.

"All these factors being considered, a substance adapted to the cure of tuberculosis must fulfill the following conditions: it must consist of genuine living bacilli of natural, complete avirulence, and not subjected to any deleterious influences, additions, etc. . . . Only after I had succeeded in removing the last and slightest traces of virulence through proper transplantations and passages, did I employ the preparations in humans. At first I repeatedly injected myself, then tuberculosis adults, then tuberculosis children, and finally, as the curative effects were constantly confirmed, I injected children for purposes of immunization.

" . . . Up to the present time I have treated with this preparation 1,182 individuals. I would go far

beyond the time at my disposal if I should go exhaustively into all the details of the preparation of the material (selection of culture medium, age and nature of the culture, its further elaboration and dosage). Only let this be emphasized, that the result is only ensured by the careful consideration of all these factors, which were gradually disclosed after years of painstaking work.

"Before I present to you the results in various classes of tuberculosis cases, I beg to express at this time my thanks to the numerous gentlemen who encouraged me through their confidence in my work, and who supported me by sending patients. And above all, through their constant corroborative observations and examinations: Drs. Bier, Hildebrandt, Schleich, Erich Mueller, Heymann, Blaschko, Neisser, Kuester, Gluck, Galewski, Karfunkel, Pulvermacher, Schwenk, Panowitz, Oppenheim, Hennig, Solms, Nagelschmidt, Saalfeld, Mohr and Dosquet.

"In every method of use—subcutaneous, intramuscular, intravenous, per os, conjunctival, locally applied to exposed tuberculosis areas—the preparation has shown itself to be absolutely harmless, even in large doses. The treatment exists in its intramuscular administration, once, twice, or three times (seldom oftener), at long time intervals. Success or non-success depends upon the complete absorption of the preparation. An infiltration must be formed at the site of injection, in size between that of a nut and a small apple, which in the course of the succeeding weeks or months gradually disappears. So long as the tissue exists and is being gradually absorbed, the healing takes place.

"Only when the injected remedy is completely taken up and remains in the body, do the striking curative effects appear. These regularly appear soon and continue. Under the influence, often of but a single injection, we see bone and fistulae of several years' standing become clean and closing.

The paper closes with a considerable number of case reports covering various tuberculosis infections and demonstration of cases.

DIABETES-MELLITUS.

I am undertaking an exhaustive research into the pathology, etiology and diet-therapy of Diabetes Mellitus. I am very anxious to hear from every physician in the United States who has a case under treatment, or who has had any experience in the treatment of this malady. Von Noorden says "the best treatment for the diabetic is the food containing the greatest amount of starch which the patient can bear without harm." If any physician who reads this has similar or contrary experience and would take the trouble to write me, I would esteem it a special privilege to hear from him, if only a postal card. Kindly address William E. Fitch, M. D., 355 W. 145th street, New York.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-Official Remedies (1912), and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

Calcium glycerophosphate is monohydrated normal calcium glycerophosphate $\text{Ca}(\text{CH}_2\text{OH}.\text{CHOH}.\text{CH}_2)_2\text{PO}_4 \cdot \text{H}_2\text{O}$, containing 90 per cent. of anhydrous salt. It is a white powder, almost tasteless, slightly soluble in water, easily soluble in dilute acids. Glycerophosphates were introduced as "nerve foods" on the belief that the phosphorus

was in a readily assimilable form. Recent animal experiments indicate that glycerophosphates possess no advantage over inorganic phosphates in phosphorus metabolism. Dose 0.2 to 0.65 Gm. in powders, wafers, capsules or tablets suspended in water or syrup, or dissolved by the addition of sufficient citric acid or diluted hydrochloric acid.

Calcium glycerophosphate, Monsanto, is a non-proprietary article and complies with the tests laid down for calcium glycerophosphate. Monsanto Chemical Works, St. Louis, Mo. (Jour. A. M. A., Jan. 4, 1913, p. 45.)

Slee's Refined and Concentrated Diphtheria Antitoxin is prepared according to Banzhaf's method. Supplied in packages containing 1,000, 2,000, 3,000, 4,000 and 5,000 units, in vials and also in syringes. The Abbott Alkaloidal Co., Chicago, Ill. (Jour. A. M. A., Jan. 4, 1913, p. 45.)

Vacules Cornutul contain cornutul 30 cc. in sealed ampules. The air in the container is removed before sealing whereby, it is claimed, deterioration is retarded. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., Jan. 4, 1913, p. 45.)

NEW MEMBERS.

Jones, H. W., San Luis Obispo.
Bush, H. C., Colfax, Cal.
Ellis, W. L., Glenn, Cal.
Downing, W. E., Suisun, Cal.
Leachman, R. S., Vallejo, Cal.
Avery, Sam'l. D., Watsonville.
Congdon, W. R., Santa Cruz.
Hall, Geo. P., Sunnyvale, Cal.
Greenwood, Edna M., San Jose.
Loehr, Bert E., San Jose.
Purkitt, Theodora T., Willows, Cal.
Bernard, J. H., Truckee, Cal.
Peck, R. E., Winters, Cal.
Yates, Jno. C., San Diego.
Hensel, E. A., San Diego.
Johnson, Wm. J., National City, Cal.
Pollock, Robt., San Diego.
Burnham, M. P., Los Molinas, Cal.
Whittington, W., Dinuba, Cal.
Helgesen, S., Templeton, Cal.
Clarke, B. F., Paso Robles, Cal.
Randolph, Jno. A., Willows.
Gardner, J. T., Willows.
Lund, Chas. W., Willows.
Lund, Etta S., Willows.
Tremblay, F. X., Willows.
Lawson, Frank M., Willows.
Gatliff, W. W., Butte City.
Yates, H. N., Pacific Grove.
Harbaugh, Dorothy F., Loma Linda, Cal.
George, W. S., Antioch.
Sweetser, G. W., Crockett.
Jones, Jno. T., Grass Valley.

DEATHS.

Borland, Robert, San Francisco.
Potts, John S., San Francisco (Died in Los Angeles).
Arndt, H. R., Cleveland, Ohio (formerly San Francisco).
Schirman, M., San Francisco.
Brown, Eugene E., Martinez.
Hansen, Geo. F. (Petaluma, Cal.), formerly of San Francisco.
Blaney, Chas. H., address unknown.
Watkins, Antoinette Q., address unknown.
Steen, D. B., Los Angeles.
Young, C. C., Los Angeles.
Dogge, O. H., address unknown.
Kierulff, B. F., Los Angeles.

California State Journal of Medicine.

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be Typewritten.

Notify the office promptly of any change of address, in order that mailing list and addresses in the Register may be corrected.

VOL. XI APRIL, 1913. No. 4

EDITORIAL NOTES

DANGEROUS PHYLACOGENS.

The *Journal of the American Medical Association* has done the medical profession of this country a great service in sounding a warning against the promiscuous use of Phylacogens, the name which the manufacturers, Parke, Davis & Co., have given to the "Schafer serum." Incidentally, in passing, the editor wishes to apologize for allowing an advertisement of this proprietary preparation to appear in the March issue of the JOURNAL. He was under the impression that it was manufactured under a Government license, but that seems to be not the case; also, it has not been submitted to the Council on Pharmacy and Chemistry and no one but the manufacturers knows exactly what goes into it and even they probably do not know just exactly what it is. Observation, however, teaches that it is an exceedingly potent and dangerous thing to use and there is no doubt that it has been the cause of a number of deaths. In San Francisco, when it was first promoted, it was held responsible for quite a number of deaths though, naturally, the physicians most directly interested do not care to be on record and so do not write up these cases. Phylacogens are mighty good things to leave alone until a proper committee or body of scientific investigators has thoroughly studied the matter and the actual facts can be known. Phylacogens, like some of the patients who receive them, will probably have but a short life.

Oakland (NOT Santa Cruz) is the place of the Annual Meeting of the State Society, April 15, 16 and 17, 1913.

LEHN & FINK; A PROTEST.

The following letter has been sent to the JOURNAL, and there is so much truth in it that we take pleasure in publishing it:

"I see Lehn & Fink are like the majority of non-ethical firms. After they get the doctor to using their line, like lysol and purgen, they begin advertising to the laity. See their 'ad' in the *Ladies Home Journal* (past two or three months). In a lot of states and in Germany this is classed as a poison with carbolic acid, etc., and has to be registered for in the same way. I think the *Journal A. M. A.* and all ethical journals should make a kick about this, not only on the grounds of the non-ethical way of advertising but also on the ground that it is too poisonous a product to advertise to the public. I am surprised that the *Ladies Home Journal* will permit it."

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WHY NOT MORE SUCH MEETINGS?

On February 22d there was held, at Del Monte, the annual gathering of the Monterey County Medical Society and the Monterey County Bar Association. It was a good meeting, a good banquet and a very good idea inspired it; anything that will get doctors to mix with other professions, is unqualifiedly good. The toasts responded to at the close of the banquet were as follows: Medical Care of the Socially Inefficient, by T. W. Huntington, M. D.; The Lawyer—Here and Hereafter, by Judge Thomas J. Lennon; An Address, by Judge B. V. Sargent; Medical Legislation, by William Himmelsbach, M. D.; Pills and Briefs, by Mr. A. Mardin; Compensation, by T. C. Edwards, M. D.; Random Shots, by Mr. J. H. Anderson; Professional Courtesy, by W. L. Teaby, M. D.

In a number of counties there are good, live medical societies and bar association; why not steal this idea from Monterey and get together once a year for a joint session of well mixed wit and wisdom? Surely we can each learn something from the other, even if it is only the fact that the other fellow is not so bad after all!

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PROMOTING FAKES.

In its issue for March, the *American Journal of Clinical Medicine*, formerly the *Alkaloidal Clinic*, the "house organ" of the Abbott Alkaloidal Co., contains in its editorial columns quite an interesting article. The publication sent to 1000 of its subscribers a letter asking a number of questions of more or less interest and "received 651 replies." "To the question, Do you own your own home? 657 physicians replied yes and 81 no." Unless our arithmetic is quite forgotten, or some new system

has recently been invented, that would make 738 answers and yet they say only 657 replies were received! May one accept this as in any degree an indication of the accuracy of the statements made in the other reading pages of this publication? It offers material for entertaining speculation. But that is merely parenthetical, so to speak; the real significance of the article is hidden in the confession of the extent to which this publication is influencing physicians toward the promotion and exploitation of medicinal fakes. "When asked whether they read the advertising pages of *Clinical Medicine*, 625 answered yes, and only 15, no; 529 stated that they purchased things advertised in the journal while 101 did not." We must, after looking through the advertising pages of this March issue, compliment the 101 who "do not." Before considering the various fakes to be found in the advertising pages (and, by-the-way, these pages are headed "Department of Progressive Advertisers"! let it be emphasized that this publication is the house organ of—is owned and published by—the Abbott Alkaloidal Co., a concern manufacturing pharmaceutical preparations for physicians' use. One wonders whether the business methods followed by the publishing department are excluded from the pharmaceutical manufacturing department. In the advertising pages we find the following things, all of which have been exposed more than once: Lymph Orchitic Compounds; Bovinine; that cottage cheese fake, Sanatogen; one of the newer fakes, Vanadiol; Gray's glycerine tonic; Palpebrine; Pepto-mangan, whose lying claims were exposed long ago; the Antidolor stuff; Anasarcin, that used to advertise as a "cure for dropsy"; Grape-nuts, the Post fake "cure" for appendicitis, till *Collier's* exposed it; Resinol; Phenalgin, exposed as a common acetanilid preparation years ago; that delicious fake tuberculosis cure, Dioradin; Ergoapiol; and do not let us forget the "Marvel" whirling spray. Can a publication be absolutely honest in its reading pages and promote frauds in its advertising pages? Most periodicals have said No, very emphatically. There is no class of publications in this country that carries so much fraudulent advertising as the "indipendant" medical (?) journals.

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LOST ARTS.

A rather interesting article, recently read, referred to the lost arts of our ancestors. No longer the housewife spins and weaves; no longer the family soap is made from the family grease and lye leached from the family ashes; no longer the candles are dipped by the hearth during the long evenings; no longer does autumn see the wonderful laying down of that immense quantity of mince-meat "like mother used to make." Passed are these things with the passing of the buffalo robe,

the wild turkey and the prairie-chicken. Has the art of prescription writing passed from us also? Has pharmacy taken the place of pharmacology? Have the patent office and the manufacturing pharmacologist taken the place of the thoughtfully put together prescription? Are the simple and valuable things of olden times buried out of sight by the flood of "discoveries"? For a simple "stiff neck" a quite new and wonderfully medically educated physician prescribed a new purgative, aspirin and a new lotion. Three dry cups, in ten minutes time, relieved the condition entirely. In what medical schools does one find a knowledge of simple and valuable things properly expounded to the students? Is all this progress really advance?

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POSSIBLE—BUT—?

A rather elderly gentleman who, all his life, had been very popular was asked, just before he died, what was the secret of his great and wonderful popularity. With a smile he whispered, "All things are possible and everybody is right." It is possible that our German colleague, Friedmann, has developed in cold-blooded animals a strain of live but quite harmless tubercular bacilli that are friendly to the human host. It is possible that a very large number of these friendly, living bacilli may be injected into the human tubercular patient and there set up a powerful antagonizing influence against the unfriendly, destructive tubercular bacilli residents. It is possible that this method of treatment may be entirely harmless to the human and may be closely approximate to a "cure." It is possible that Friedmann may have been actuated throughout his work and his announcements of this treatment by the highest of humanitarian and scientific motives. It is possible that Germany did not offer a sufficiently large or encouraging field in which to test satisfactorily his treatment. All these things are possible. But, we do not know exactly what it is that Friedmann injects and to that extent it is a secret remedy. And furthermore, we know that nothing in the nature of a remedial agent or procedure has ever proved to be more than a small fraction as valuable as its originator and its early enthusiastic supporters claimed it to be. In our natural anxiety to see the advent of anything that will free the race from the terrible scourge of tuberculosis, let us not forget our common sense and our reason. Common sense and reason tell us that while all these things are *possible*, some of them are very *improbable*.

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TUBERCULOSIS OF BONES AND JOINTS.

It is our custom to segregate in large manila envelopes appropriately tabulated reprints of original communications for which we are indebted to the courtesy of their authors. Every little while, whenever an envelope has become filled to its capacity, it is emptied and its contents read, abstracted and analyzed. Lately the contents of the envelope entitled "Tuberculosis of Bones and Joints" came under consideration. There were thirty-eight reprints in all, many of them appearing over the signatures of men of national and international repute.

In comparing these papers we attempted to approach the subject in such a receptive frame of mind as might a hospital intern, for example, and have endeavored to record here the impressions which the reading of them might reasonably be expected to make upon the mind of such an one.

The first impression must inevitably be one of bewilderment. On the one hand is seen Bradford, the dean of American Orthopedic Surgeons, and the majority of his pupils, asserting, and demonstrating to their own satisfaction, that the only logical treatment for tuberculous disease of the hip joint, for example, is traction, or better distraction, and the removal of weight bearing, while on the other hand Goldthwaite and some of the New York and Philadelphia men permit their patients to walk on the diseased hip, limiting treatment to control of pain and maintenance of the limb in the most useful position.

With what access of bewilderment does he learn that most surgeons attempt to obtain for such a hip joint the utmost attainable range of motion the while he reads the pronouncement of Lorenz that he would welcome any treatment which would produce a firm ankylosis at the hip joint.

Imagine his edification if he be historically minded, when he finds methods for straightening the kyphotic spine which had been practiced by the predecessors of Hippocrates, rediscovered by Calot.

How aghast must he stand at the manifest malignancy of this dread disease as demonstrated by Painter's statistics of late recurrences; and by contrast, with what growing irritation must he review the insignificant modifications of treatment to which one or other luminary ascribes directly or indirectly his own modestly confessed successes.

If, his bewilderment and consternation being changed to indignation, our student turns his back upon a house so divided against itself as this orthopedic edifice and seeks solace in the society of those versatile performers who, being equally at home in brains, bowels and bunions, are appropriately nominated "general surgeons," he finds himself in a more pitiable plight. For these gentlemen either follow the lead of one or other of the orthopedic cult, in so far as their unfamiliarity with orthopedic appliances and in dexterity in the use of them do permit, or, seeking some operative short-cut to a cure, such as the focal extirpation advocated by v. Volkenan in 1876 and occasionally rediscovered since, are reasonably certain to include the epiphyses in their aggressions. That such

operations will cut short the disease is denied as emphatically as it is affirmed. That they will cut short the growing leg can safely be asserted.

If now our student, despairing of harmony between clinicians, tries to forget his sorrows in the study of pure science, and to that end turns to a consideration of the pathology of bone tuberculosis, he at once finds himself introduced to a discussion which, while conducted within the amenities, for perfvor is to the clinical alignment as is a Donnybrook Fair to a Church Picnic. While one scientist, on the basis of studies conducted in hundreds of joints proves to his own satisfaction, and that also of all descendants of them that came over in the Mayflower, that tuberculosis of bones begins regularly in the epiphyseal cartilage, a second learned one scarcely less famous and twice as vociferous, asserts, on the basis of another large number of studies, that bone and joint tuberculosis is essentially a disease of the synovia or of the red marrow and that the epiphysis has only a casual and wholly secondary connection with the morbid process.

Who shall blame the student if under all these added strains his mind gives way and he becomes an osteopath? For this cult founded by a charlatan and based upon a series of anatomical absurdities has at least the virtue of consistency.

S. N. I.

Oakland (NOT Santa Cruz) is the place of the Annual Meeting of the State Society. April 15, 16 and 17, 1913.

DOCTORS AND LAWYERS.

Unfortunately, there is a very general impression in the public mind, and in the minds of a great many physicians as well, that the professions of law and medicine are very much alike, as they relate to the public in general, and hence should be subjected to legislative control in quite similar ways. Even no less a person and so able a lawyer as Governor Johnson, in his message to the legislature at its opening, voiced this thought and referred to the fact that a lawyer practicing in one state can go to another and practice with but little formality and no difficulty; he is not subjected to an examination before being permitted to practice law, so why should a physician be examined before being licensed to practice medicine? After a little thought, the fallacy of the argument in comparison becomes evident. Most physicians after they are graduated and licensed, unfortunately do not keep up with the progress of medicine; this fact is recognized by the government services and the members of the medical departments of these services are subjected to rigid examinations at specified intervals of a few years. The medical men working for the government must keep up in their profession; they must keep abreast of medical progress and they must not "get rusty" in what they should know, or they are retired. Thus the government secures for its servants, the very best of medical service. But this is quite different from the case with the general run of medical men who are in practice; they are never exam-

ined as to their fitness to practice, except in the event that they wish to move from one state to another which does not accept the license of the state in which they have been practicing. The average doctor, after he begins practice, soon gets busy; he works hard and for long hours at a time; he has little time or inclination to do much studying or heavy reading. He probably takes a few medical journals, but most of these are tainted in their reading-pages and perverted in their advertising pages. He follows the line of least resistance; his work is generally confined to some small field of medical science and the rest of it fades out of his sight and his mind. Unless he is doing surgery, his knowledge of anatomy becomes, with each passing year, more and more unreal, vague and indefinite; and if he is a surgeon, his knowledge of pharmacology (the little that he got in medical school) becomes quite as vague as the physician's knowledge of anatomy, if not more so. Each gains in experience the knowledge of practical things that helps him in his every-day care of those who come to him, but loses something of the general knowledge which he should have. This is an unpleasant statement of facts but, save in exceptional cases, the truth of the statement cannot successfully be denied. However, it is a condition that is passing; more physicians are doing post-graduate work; more are traveling to centers of learning, every few years; the general movement is upward rather than downward. Doubtless this is due to the requirement of more preliminary education before the study of medicine may be commenced and to the resultant fact that a better class of material enters the medical schools. It has been suggested many times, in a rather timid and faltering way, that all physicians should be required to take an examination for re-license every few years and thus weed out those who do not keep up in their medical studies. Some day this will be done; some day the general public will insist that it shall receive at least as good medical care as the government servants are given.

Now consider the case of the lawyer, which is so very, very different. Every lawyer is constantly being examined; everything he does is passed upon by others, judges or juries, all of whom are scrutinizing his work most carefully and trying to find out his mistakes and his errors of judgment. Every time he goes into court; every time he prepares a brief; every time he draws up a contract, a deed, a will, an instrument of any sort, he is studying in a post-graduate school. His progress, his success, depend upon his fitness; upon how much and how carefully he has studied and kept himself abreast of legal practice and legal advance and not upon the adoration of a lot of people who believe what he says, as in the case of the physician, without being in any way able to pass upon the accuracy of his statements. No one passes upon a doctor's work, save in rare instances; there is no one to reverse his opinion. The lawyer knows that his opinion, if it is wrong, will be reversed when he gets into court, but no such thing ever enters the physician's life or his thoughts. The physician's tools, many of them, grow rusty

from disuse; the lawyer's tools are constantly being ground, and sharpened and polished. The physician comes in contact, almost exclusively, with sick people and those whose minds are not so active as his own; the lawyer's daily life is one of a warfare of wits with healthy, active-minded men who are at least as keen as he is and who do not think he is the greatest man in the world. As it has been said, rather harshly, a lawyer's mistakes are of open record and live after him; a doctor's mistakes are buried.

How fallacious it is, in view of these facts, to compare in even the slightest degree, the professions of law and medicine in so far as they shall be treated in the matter of allowing their respective followers to practice upon a confiding public. The lawyer may safely be left to the happenings of his daily professional life to secure his continued study, his constant fitness for his professional dealings with the public; with the physician, however, there is no way of determining his continued fitness save by an impartial examination by those who are duly qualified and up to date in medical science. One cannot imagine two professions more dissimilar, in their effect on the individual follower and his development, than those of law and medicine.

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WHEN YOU CHANGE
YOUR ADDRESS, ADVISE US
PROMPTLY.

IF YOU DO NOT RECEIVE YOUR
JOURNAL REGULARLY, LET US
KNOW ABOUT IT.

BE SURE AND SEE THE
EXHIBIT AT THE ANNUAL MEETING,
HOTEL OAKLAND.

PROGRAM

Forty-Third Annual Meeting of the Medical Society of the State of California

**OAKLAND, TUESDAY, WEDNESDAY AND THURSDAY,
APRIL 15th, 16th and 17th, 1913**

The Hotel Oakland will be the headquarters, and you should write to the hotel and make your reservation; rooms, without board, from \$1.50 per day up.

The usual arrangement of railroad rates will be in effect; pay your full fare and get a "receipt certificate" for the going trip. Have this receipt signed by the Secretary and you may then get your return ticket for one-third the regular fare.

On Friday and Saturday, April 18th and 19th, there will be clinics in San Francisco, the full details of which will be announced later.

SPECIAL NOTICES.

House of Delegates—The President desires to call the House of Delegates to order at 7:30 P. M. (not at 8, as usual) in order that the Delegates may complete the work of the first session as early as possible and thus be able to attend the ball.

Entertainments—The physicians of Alameda County are going to entertain the State Society most royally. There will be an automobile ride for the ladies with a tea at the Country Club on Tuesday afternoon. There will be a ball at the Hotel Oakland on Tuesday night. There is also planned a tug ride on the bay for one afternoon and a reception at the home of the President, Dr. O. D. Hamlin.

County Secretaries—There will be a meeting of County Society Secretaries at 6:30 P. M., Monday, April 14th, at the Hotel Oakland. After the dinner there will be a general discussion of county society work, etc. Every County Society Secretary should make it his business to attend this meeting; remember, it is on Monday, the day before the first session of the State Society meeting. Be sure and come.

FIRST DAY.

Tuesday, April 15, 1913.

Morning Session.

9:30 A. M.

1. Address of Welcome, by the Mayor of Oakland.
2. President's Address.
Dr. O. D. Hamlin (Oakland).
3. Report on Public Policy and Legislation.
Dr. Geo. E. Tucker (Riverside).
4. Report on Medical Education.
Dr. W. F. Snow (Sacramento).
5. Report of the Board of Medical Examiners.
Dr. G. F. Reinhardt (Berkeley).
6. Report of the Committee on Public Health.
Dr. N. K. Foster (Oakland).
7. Report of the State Tuberculosis Commission.
Dr. Geo. H. Kress (Los Angeles).
8. Report of the Special Committee on the Effect of Athletics on Young People.
Dr. F. M. Pottenger (Monrovia).
9. Report of the Committee on Arrangements.
Dr. E. N. Ewer (Oakland).

Tuesday Afternoon, 1:30 p. m.

Symposium on Gall Bladder.

10. Cholelithiasis—Its Pathology.
Prof. Wm. Ophüls (San Francisco).
11. Symptomatology of Gall Bladder Diseases.
Dr. H. C. Moffitt (San Francisco).
12. Unusual Clinical Features Associated with Gall Bladder Disease.
Dr. C. M. Cooper (San Francisco).

13. Pancreatic Complications in Gall Bladder Disease.

Dr. Leo Eloesser (San Francisco).

14. Chronic Diseases of the Gall Bladder and Appendix as Etiologic Factors in the Production of Digestive Symptoms.
Dr. W. Francis B. Wakefield (San Francisco).
15. Medical Treatment of Gall Bladder Diseases.
Dr. Dudley Fulton (Los Angeles).
16. Surgical Treatment of Gall Bladder Diseases.
Dr. W. I. Terry (San Francisco).

SECOND DAY.

Wednesday, April 16, 1913.

Morning Session, 9 o'Clock.

17. Clinical Report on Bacteriology of the Urinary Tract, Especially in Relation to Movable Kidney.
Dr. David Hadden (Oakland).
18. The Diagnosis of Surgical Diseases of the Colon.
Dr. E. C. Moore (Los Angeles).
19. Modern Treatment of Fractures.
Dr. W. W. Richardson (Los Angeles).
20. Management of Fractured Charcot Hip Joints.
Dr. Rexwald Brown (Santa Barbara).
21. Exophthalmic Goitre—Indications and Contra-Indications for Operation.
Dr. Edwin H. Schneider (Los Angeles).
22. Report on Thirty-three Cases of Traumatic Hysteria.
Dr. J. T. Fisher (Los Angeles).
23. Strychnia Treatment of Tri-facial Neuralgia.
Dr. Thos. J. Orbison (Los Angeles).

24. Thoracic Esophagectomy, with Report of Case.
Dr. J. Henry Barbat (San Francisco).

Wednesday Evening, April 16, 1913.

General Session, 7:30 P. M.

25. Occupational Diseases—Aspects of Nitroglycerine Manufacture.
Dr. E. G. Ebricht.
26. Safety Protection of the Laborer.
Dr. Aaron L. Sapiro (Sec. Industrial Board of Calif.).
27. School Inspection.
Miss A. F. Brown (Member of Board of Education).
28. Housing Problems.
Miss Jessica Peixotto (Asst. Prof. Sociology, Univ. Cal.).
29. New Legislation—In Public Health and Medical Matters.
Dr. Wm. F. Snow (Sec. State Board of Health).
30. The Effects of Excessive Athletics on University and High School Students.
Dr. H. D'Arcy Powers.
31. Physicians' Aspect of Sunday Closing of Pharmacies.
Dr. A. S. Musante.

THIRD DAY.

Thursday, April 17, 1913.

Morning Session, 9 o'Clock.

32. Diastatic Ferments in the Stools.
Dr. Walter C. Alvarez (San Francisco).
33. The Routine Study of Diabetic Patients.
Dr. Thomas Addis (San Francisco).
34. Carbohydrate Food in Diabetes.
Dr. Emile Schmoll (San Francisco).
35. Obscure Manifestations of Rheumatism in Childhood.
Dr. J. A. Colliver (Los Angeles).
36. Some Sources of Error in the Diagnosis of Pneumonia in Childhood.
Dr. E. C. Fleischner (San Francisco).
37. Sources of Error in Blood Pressure Measurements.
Dr. E. S. Kilgore (San Francisco).
38. Unusual Forms of Typhoid Infection.
Dr. W. T. Cummins and Dr. P. K. Brown.
39. Demonstration of the Work Done by the Pasteur Division of the State Hygienic Laboratory.
Dr. W. F. Snow (Sacramento).

THIRD DAY.

Thursday, April 17, 1913.

Afternoon Session, 1:30 o'Clock.

40. Modern Therapy of Syphilis.
Dr. Victor Vecki (San Francisco).
41. Peribronchial Origin of Tuberculosis with Study of Early Cases.
Dr. Phillip King Brown (San Francisco).
42. Enlargement of the Mediastinal Lymph Nodes—Their Diagnosis and Significance in the Protracted Cough of Childhood. (Lantern slides.)
Dr. Daniel Crosby (Oakland).
43. Experience with Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis.
Dr. F. Fehleisen and Dr. Max Rothschild (San Francisco).
44. A Case of Systemic Blastomycosis, with Pathological Findings.
Dr. Harold Hill and Dr. E. C. Dickson (San Francisco).
45. Pellagra—A Case Report.
Dr. S. Davison (Los Angeles).
46. Some One Thousand Cases of Vaccinations in which were Observed the Early Pirquet Reaction.
Dr. John Force (Berkeley).

Dermatological Section.

Thursday Afternoon, April 17, 1913, 1:30 o'Clock.

(In a separate meeting room.)

47. Presentation of Dermatological Cases.
Dr. Harry E. Alderson (San Francisco).
48. Parasitic Skin Diseases in California.
Dr. E. D. Chipman (San Francisco).
49. Ringworm in California.
Dr. H. Morrow (San Francisco).
50. Acne Vulgaris.
Dr. Lasher Hart (Los Angeles).
51. Instances of Syphilis, Eczema and Psoriasis of the Palms.
Dr. D. W. Montgomery and Dr. G. D. Culver (San Francisco).
52. The Coagulation Time of the Blood in Diseases of the Skin.
Dr. D. Friedlander and Dr. G. H. Mize (San Francisco).

Urological Section and American Urological Association.

Wednesday, April 16, 1913.

Morning Session, 9 o'Clock.

53. Partial Bilateral Nephrectomy in an Advanced Case of Calculous Pyonephrosis.
Dr. Wm. E. Stevens (San Francisco).
Discussion by Dr. Walter S. Johnson (San Francisco).
54. Undescended Testes.
Dr. R. L. Rigdon (San Francisco).
Discussion by Dr. C. D. Lockwood (Pasadena, Cal.).
55. Treatment of Gonorrhea in the Female.
Dr. Walter S. Johnson (San Francisco).
56. Value of Pyelography for the Diagnosis of Hydronephrosis.
Dr. Martin Krotoszyner (San Francisco).
Discussion by Dr. R. L. Rigdon (San Francisco).
57. Operations in the Closed Bladder.
Dr. Henry Meyer (San Francisco).
Discussion by Dr. M. Krotoszyner (San Francisco).
58. Atrophy of the Prostate.
Dr. Howard Somers (San Francisco).
Discussion by Dr. W. P. Willard (San Francisco).
59. The Results of Treatment of Pyelitis.
Dr. Geo. S. Whiteside (Portland).
Discussion by Dr. M. Silverberg (San Francisco).
60. Prostatitis Developing in Men Past Middle Life.
Dr. W. P. Willard (San Francisco).
Discussion by Dr. V. G. Vecki (San Francisco).

Eye, Ear, Nose and Throat Section.

Tuesday, April 15, 1913.

Joint session of the American Laryngological, Rhinological and Otological Society and of the Eye, Ear, Nose and Throat Section of the State Society.
Dr. Hill Hastings in the chair.

Tuesday Afternoon, 2 o'Clock.

61. Chairman's Address: Labyrinthine Disease—Non-Suppurative Tuberculosis of the Middle Ear.
Dr. H. B. Graham (San Francisco).
62. Tonsillectomy in the Upright Position under Ether.
Dr. W. H. Roberts (Pasadena).
63. Malignant Growths of the Naso-Pharynx, with report of cases and Exhibition of Sections.
Dr. A. S. Kelsey and Dr. J. M. Brown (Los Angeles).
64. Pharyngitis Herpetica Ascendens in Children.
Dr. H. S. Wagner (San Francisco).
65. Relation of the Nasal Septum to the Syndrome of Pheno-Palatine Ganglion Neurosis.
Dr. J. J. Kyle (Los Angeles).

66. Report of Some Interesting Esophageal Cases.
Dr. W. P. Millspaugh (Los Angeles).
67. Mucocoele of the Frontal Sinus.
Dr. Geo. McCoy (Los Angeles).
Wednesday, April 16, 1913.

Section of the State Society, Dr. H. B. Graham in the chair,

Morning Session, 9:30 o'Clock.

68. Function of the Semicircular Canals.
Dr. S. S. Maxwell (Univ. of Cal.).
69. Absorption of Cataract in Patient over 70 years of Age.
Dr. W. H. Dudley (Los Angeles).
70. Sclero-Corneal Trephining for Glaucoma (R. H. Elliott).
Dr. Kaspar Pischel (San Francisco).
71. Subconjunctival Injection of Cyanide of Mercury.
Dr. A. S. Green (San Francisco).
72. Trephining of the Eye-Ball for Glaucoma; a Clinical and Experimental Study.
Dr. W. S. Franklin and Dr. D. R. Powell (San Francisco).

THIRD DAY.

Thursday, April 17, 1913.

Morning Session, 9:30 o'Clock.

73. Affections of the Eyes Resulting from Sinus Involvements.
Dr. Robt. W. Miller (Los Angeles).
74. Effects on the Eye of General Pathological Conditions (Case Histories).
Dr. W. F. Blake (San Francisco).
75. Iritis; Some Facts of General Interest.
Dr. Vard H. Hulen (San Francisco).
76. An Unusual Case of Ophthalmic Migraine.
Dr. E. W. Alexander (San Francisco).

Thursday Afternoon, April 17, 1913.

2 o'Clock.

77. Tuberculosis Lymph Glands of the Neck; Their Relations to the Diseases of the Ear, Nose and Throat.
Dr. B. S. Stevens (San Francisco).
78. Mouth and Larynx Signs and Symptoms in Tuberculosis.
Dr. H. S. Moore (San Francisco).
79. Thrombosis of the Lateral Sinus with report of Five Cases.
Dr. Cullen F. Welty (San Francisco).
80. Ductless Gland Extracts in Relation to Ear Affections.
(Dr. H. Y. McNaught (San Francisco).
81. Meningitis of Otic Origin Due to Organisms of the Streptothrix Group.
Dr. Henry Horn (San Francisco).
82. Concerning the Lingual Tonsil.
Dr. M. W. Fredrick (San Francisco).

There will be an exhibition of Pathological Specimens, Slides, X-Ray Plates and new Instruments. (The exhibition of X-Ray Plates is under the direction of Dr. Freytag of San Francisco.)

Clinics in San Francisco.

Friday, April 18th, and Saturday, April 19th, 1913.

The members of the State Medical Society are invited by the Medical Department of the University of California to attend the following demonstrations and clinics:

On Wednesday morning, April 16th, the laboratories of Anatomy, Physiology, Physiological Chemistry, and of Pathology and Bacteriology on the University campus, Berkeley, will be open for inspection and demonstrations.

Outpatient and ward clinics will be held at the University of California Hospital, Affiliated Colleges, Second and Parnassus avenues, San Francisco, on Friday morning, April 18th, from 8:30 to 11, by the following members of the Hospital staff:
Dr. H. C. Moffitt.....Medicine
Dr. W. I. Terry.....Surgery

Dr. Howard MorrowDermatology
Dr. S. J. Hunkin.....Orthopedics
Dr. M. B. Lennon.....Neurology
Dr. W. P. Willard.....Urology
Dr. R. L. Ash.....Pediatrics
Dr. H. T. Moore.....Gynecology
Dr. Saxton PopeExperimental Surgery

A Clinic in Urological Medicine. Dr. Martin Krotoszyner, Dr. Wm. E. Stevens and Geo. Hartman, German Hospital, Saturday 10:00 to 12:30.

The following clinics and demonstrations will be given at the Stanford University Medical Department, Sacramento and Webster streets. All members of the Society are invited to attend:

Friday Afternoon, April 18, 1913.

Department of Pathology.

(Prof. Ophüls and Dr. Dickson.)

The Pathological Museum will be open all afternoon. At 4 p. m. there will be special demonstrations by Prof. Ophüls.

X-Ray Laboratory.

(Dr. W. W. Boardman.)

Laboratory open from 2 to 4 p. m. Special demonstration of gastro-intestinal conditions at 2:30 p. m.

Clinical Laboratory.

(Dr. Addis.)

Demonstration of new methods in Clinical Pathology.

(Dr. H. R. Oliver.)

Demonstration of laboratory diagnosis of syphilis.

Saturday Morning, April 19, 1913.

Surgery.

Surgical demonstrations, Dr. Rixford and Dr. Eloesser. 8 a. m. to 10 a. m.

Department of Medicine.

Special Medical Clinic.

Dr. Wilbur, 10 a. m.

Dr. Cheney, 11 a. m.

Department of Obstetrics and Gynecology.

Dr. A. B. Spalding, 11 a. m.—Lantern slide demonstration, "Physiological and Pathological Activities of the Syncytium."

Dr. Topping, 10 a. m.—Gynecological Clinic: to demonstrate pessary in cases of inoperable prolapsus uteri.

Pediatric Clinic.

Demonstrations 10 a. m.

Dr. R. L. Porter, Special Cases.

Dr. M. R. Gibbons, Cases of Bronchiectasis.

Dr. H. H. Yerington, Demonstration of children treated with Salvarsan.

Dr. F. M. Holsclaw, Feeding clinic.

Neurological Clinic.

(Dr. Walter Schaller.)

Demonstration of cases, 9 a. m.

Skin Clinic.

(Dr. H. E. Alderson.)

Demonstration of cases of skin diseases and cutaneous syphilis, 11 a. m.

Genito-Urinary Clinic.

(Dr. R. L. Rigdon.)

Demonstration of cases, 9 a. m.

Tropical Diseases.

There will be a demonstration of patients, pathological and bacteriological specimens by Dr. Herbert Gunn at 9 a. m.

The new Lane Medical Library Building will be open for inspection on Friday and Saturday, April 18th and 19th.

* * *

The clinics for the Eye, Ear, Nose and Throat Section have all been arranged for Friday, and will take place as follows:

9 a. m.—University of California, Affiliated Col-

leges. Take Hayes-street car. Dr. Albert Houston. Ear, Nose and Throat.

Dr. W. F. Blake—Ward Demonstrations and Operations on the Eye, including a Muscle Advancement and a Cataract Operation.

Dr. W. S. Franklin—Clinical Demonstrations—Eye.

9 to 10 a. m.—Polyclinic, 443 Fillmore street. Dr. C. F. Welty. Demonstration of Clinic Cases.

10:30 a. m.—German Hospital. Take Haight-street car. Dr. C. E. Welty. Radical Mastoid Operation with Skin Graft.

Tonsillectomy under General and Local Anaesthesia.

9 a. m.—Mary's Help Hospital, 145 Guerrero street. Dr. Henry Horn. Demonstration of the Hanging Laryngoscopy. Tonsil Operations. External Accessory Sinus Operations.

Dr. C. S. G. Nagel. Operations on the Eye.

9 a. m.—Hahnemann Hospital. Dr. Vard H.

Hulen will demonstrate his Operation for Strabismus.

2 p. m.—Stanford University, Sacramento and Webster streets.

Drs. A. B. McKee and A. S. Green—Demonstration of Eye cases.

Dr. W. H. Roberts—Tonsillectomy in the Upright Position under Ether.

Dr. H. B. Graham—Hanging Laryngoscopy; Radical Mastoid Operation; Demonstration of Accessory Sinus Cases Cured by Intranasal Operations.

Dr. G. P. Wintermute—Demonstration of Cases of Labyrinthine Lues and of Peculiar Nystagmus Reactions.

Dr. H. G. McNaught—Demonstration of Tonsillar Operations both with Local and General Anaesthesia.

Dr. H. S. Moore—Demonstration of Cases of Tubercular Laryngitis.

Dr. Kaspar Pischel will demonstrate his method of closure of intranasal wounds. The time and place will be designated later.

ORIGINAL ARTICLES

RATIONAL PSYCHOTHERAPY.*

By H. C. McCLENNAN, M. D., San Francisco.

The reasons for presenting this paper are threefold:

1. The necessity for a better and more scientific understanding generally of the principles, indications and application of psycho-therapeutic measures.

2. The disposition of many to regard attempts at such treatment as unscientific, irrational or even questionable.

3. The failure or refusal of some to use mental measures, as such, independently of, or in connection with, other treatment when indicated.

My purpose in presenting the paper is to more clearly define these principles—their indications and rational application; to modify the attitude of some toward the subject; and especially to plead for a more scientific and extensive application of such measures. I will attempt to do this by utilizing the same lines of argument or reasoning that we apply when dealing with other rational or scientific procedures; and if I incur the penalty of appearing elementary I can at least hope to avoid the dangers of being misunderstood. Illustrating cases will conclude the paper.

Therapeutic measures owe their existence to the results of the efforts of some individuals to bring to a state of efficiency other individuals who have become inefficient. This is illness or disease in its broadest sense. Only when the use of such measures is governed by a due regard for the laws of cause and effect do they merit the term *scientific*—or rational; otherwise they become empirical or irrational. The determination of the relation of cause and effect, in the human organism, which results in rendering that individual inefficient, must preface any scientific efforts at restoration to efficiency. Only this causal attitude to the impaired efficiency of a human being justifies any claim whatsoever of

being scientific. No such attitude is possible in the absence of knowledge of the structure and functions of the organism, and this knowledge can only be acquired by the study of anatomy and physiology. Medical men possess this knowledge. Therefore they are qualified to select and apply remedial agents for the human organism, and certainly no others are justified in claiming this requisite.

Medicine approaches the indications for remedial agents, then, in the human being, by regarding the individual as a composite, harmonious working organism. When this harmony is broken, either by injury to its parts or structures, or through its functioning processes, certain manifestations which we call symptoms occur, and we investigate these symptoms as effects of causes, the removal of which restores harmony in the organism. Therapeutic measures are directed toward the removal of such causes, when possible, or to the favorable modification of their effects, when not removable. This is the ultimate object sought in the scientific application of therapeutic measures. To equip the individual with the requisite knowledge to determine this relation of cause and effect, for the purpose of effecting their removal or favorable modification in the human being, has been the object of medical teaching and investigation since the time that medicine assumed a scientific aspect.

That the efforts and methods of medical science have reached a high degree of perfection in solving the problems concerning the human organism itself from the causal standpoint, is a glorious fact. The combined efforts of all the allied sciences have been brought to bear upon the question; there exist innumerable chemical, biological, anatomical, physiological, histological, bacteriological, and pathological laboratories, with their armies of trained workers.

And yet when we contrast what has been done in the scientific investigations into the greatest of all functional attributes of this organism, viz., the human mind, we find an equally deplorable fact. In the rush to solve the problems concerning the organism itself, medical science has

* Read at the General Meeting of the San Francisco County Medical Society, November 12, 1912.

been content to allow a few of its members to grope blindly along with the problems concerning the mind—generally denying their efforts even the sympathetic encouragement they deserved. In consequence, this has been an inviting and fruitful field for exploration and exploitation by the non-medical, unscientific, visionary, and religious what-nots. Forty years ago there was one psychological laboratory in the United States; to-day there are forty. Comparatively speaking it is only within recent years that the study of mental phenomena has assumed a scientific aspect, and there are really only a few published works that deserve the term *scientific*. Prior to this, the writings were principally philosophical, metaphysical or theoretical—and generally absurd.

Within recent years, however, the results of the studies in anatomy, physiology and pathology—and especially experimental physiology—have furnished a basis for a physiological psychology, i. e., a psychology dealing with the mind in a causal sense—thus putting the question finally and definitely upon a true scientific basis. Hence, medical men are no longer justified in assuming any attitude toward the question of mental phenomena other than a scientific one. This is a most gratifying as well as important fact, as it promises a more rapid and satisfying progress in this important branch of medicine.

While most of the problems concerning the mind are still unsettled, and probably will be for some time to come, yet we have many elementary facts which can be utilized in medical work, to the distinct advantage of the many individuals with impaired efficiency, and with the satisfying assurance that we are all the time remaining upon absolutely scientific ground. To do this, however, we must consistently maintain the causal attitude to all mental processes, in exactly the same manner in which we deal with all other processes of the organism. We must recognize mental processes as the highest type of nerve functioning; that the mind has as its anatomical basis the brain, especially the brain cortex, and that its manifestation, normal or abnormal, has its origin in the physiology of the brain. We must consistently maintain this physiological parallelism, i. e., that psychic processes have their origin in physical or chemical changes in cortical brain cells. That we cannot always demonstrate this fact need not disturb us, for pathological and experimental physiological studies amply warrant it.

That the same structural and functional relations that exist in other important organs must be applied here, is a most important factor—particularly when the application of corrective measures is considered. We must never lose sight of the importance of these processes to the individual, remembering that they determine for him the state of his body, and maintain the relation of that body to its environment—the former through his organic sensations, viz., pain, touch, temperature, etc., the latter through his special senses, viz., sight, hearing, touch, taste and smell.

We must also bear in mind that these sensations are the only means which furnish him with information concerning the state of his body or his surroundings, that these impressions or sensations are registered in the brain, are capable of recall through the process of memory, and that their ease of recall is due to their vividness when received and to the frequency of their repetition. That the intellectual processes are all the result of education and experience, and that they are accompanied by effects or feeling tones, and that these feeling tones possess a most powerful influence on both the physical and mental reactions of the individual. That they largely determine the attitude of the individual to his organism, as well as to his environment, must never be forgotten. That these emotions, or feeling tones, are best controlled or inhibited by the intelligence is imperative, frequently holding the key which unlocks the therapeutic situation and reveals the benefit to be derived through better understanding by that individual of the conditions existing in his body or in his surroundings.

When the physician is confronted with the problem of restoring to efficiency an inefficient individual, he begins that task by attempting to determine the relation of cause and effect. To do this he brings to bear his knowledge of the structure and functions of the organism and their relation to one another; he keeps constantly in mind the effects of structural change on physiological function, as well as functional processes upon the alteration of structure, and particularly unusual, intense or perverted functioning and its greater tendency toward structural change.

He knows that the success of correcting measures is primarily dependent upon this determination. If structural alteration has occurred, his efforts are directed toward the restoration of structural integrity, and he calls to his aid all the assistance he can derive from lessening the functioning of that particular structure. If no structural alteration has occurred, then his corrective measures are directed to the abnormal functional process, both qualitatively and quantitatively. If he is dealing with hyperfunctioning, his efforts are at reduction; if hypofunctioning, they are at acceleration; if perverted, at direction, etc. The first represent the organic, the latter the so-called functional disorders.

That alteration of structure or function of any particular structure or organ affects the integrity or processes in other and even remote parts of the organism he always considers, both in diagnosis and treatment. The knowledge that mental processes, both normal and abnormal, possess this feature in a high degree is indispensable to him. Particularly the fact that the mind uses the body as the only means of expression. He might take the position that the aim of the organism is to subserve the purposes of the mind—and still that the very existence of the mind is dependent upon the organism itself is well known to him.

Psychotherapy aims to correct those mental processes that affect the individual unfavorably. Espe-

cially is it indicated when those processes are primarily mental or psychogenic or due to functional disturbances; and when it deals with the psychic from the causal standpoint, it is scientific and rational. This is the kind of psychotherapy embodied in the title of this paper. In other words, mental disorders due to disorders of mental processes require mental measures for their correction. Whether or not the psychogenic disorder has somatic effects does not alter this position whatever. That the inefficiency of many individuals seeking restoration from the physician is caused by disorder of his mental processes *per se* is unquestionable, therefore the physician who refuses or fails to apply psychic treatment in the correction or removal of such causes is not scientific, he is not rational, and I doubt if he can fully justify the claim of being entirely a conscientious worker. I do not mean to convey the idea that all physicians shall be skilled in psychotherapy any more than that all should be skilled surgeons, or skilled oculists, but I do claim that they should possess sufficient knowledge of mental processes to enable them to recognize effects (symptoms), be they somatic or psychic, when due to mental causes—just as he should possess sufficient knowledge of surgery or ophthalmology to recognize a surgical condition or an ocular disorder, and not direct physical treatment to mental disorders any more than the surgeon would direct medical treatment to surgical disorders—and maintain any justifiable claim to scientific principles. Neither can the physician justify his failure to institute psychic treatment in psychic disorders for lack of time or knowledge, any more than the surgeon can fail to institute surgical treatment in surgical disorders for the same reasons. And should his investigations or treatment necessitate his dealing with unpleasant or disagreeable situations, he should not falter any more than the surgeon would in making a rectal examination when indicated, or in removing a fecal impaction when the welfare of his patient demands it.

When the medical profession as a whole adopts this attitude toward mental disorders, and the physician deals with his psychic cases in the same scientific manner as he handles his somatic disorders, the question of the many lay mental healers will largely take care of itself. I offer the same reasons why the medical man alone has a right to treat mental disturbances as appertain to other disorders of mankind, and among these it is sufficient to mention:

That he possesses the requisite preliminary knowledge.

His time and efforts are devoted to the alleviation of the ills of mankind.

The patient has more confidence in the medical man, applies to him first, consequently he sees the disorder in its incipency.

His ability to recognize physical causes, or accompaniments, their value and bearing in the case.

His knowledge of remedial agents, their indication, character, application, etc. No layman can claim such qualifications.

These and many more can be offered, but above all is the physician's sacred obligation, implied when he assumes the role of relieving the sufferings of humanity. It is entirely justifiable then for the physician to resent the invasion of laymen who assume the role of healing the disorders of mankind without any of the above requirements, and I do not hesitate to say that his duty forbids his ever condoning, but always condemning such healers and their methods.

No one of intelligence accuses medical science of dereliction of duty in its efforts to relieve the physical ills of mankind. Are we entitled to the same degree of consideration when it comes to our efforts in attending his mental disorders? The multitude of cults, isms, paths, quacks, patent medicines, frauds, cures, etc., would seem to question the claim.

To persist in the attitude that mental measures are unscientific, irrational, and not exactly the duty of the medical man to recognize and utilize, does not seem justifiable in the face of such facts. On the contrary, it would seem that the time is certainly here for medical men to abandon this untenable attitude, cease decrying psychotherapeutic measures as unscientific or irrational, accept the teachings of modern physiological psychology, and recognize mental maladies in their true light. Help to rescue these sufferers from the vagaries of lay healers, and thereby return the preacher-doctors to their consecrated duties of attending to the guiding of the souls of their flocks; force the bricklayers, cobblers and hodcarriers, now practicing healing the sick, back to their respective labors, for which they are only fitted; and the fanatics, religious cranks, and deluded old maids, now practicing as mind or disease healers, will resume a less injurious if no less pretentious avocation, and medical science will add another important and distinct triumph to the many already rendered to mankind.

Before concluding the paper, to mention another important phase of this matter seems imperative, i. e.: the question of the mental, moral and spiritual—their relation, coexistence, or interdependence. With the mental alone is the physician concerned, even he who practices psychotherapy exclusively. Unfortunately, the confusion resulting from the interchanging, or even synonymous use of these terms in the writings on mental phenomena, is most deplorable. Such a clear writer and able psychotherapist as Paul Dubois unfortunately does not discriminate between the moral and mental in his able work on the *Psychic Treatment of Nervous Diseases*.

The psychotherapist, in the application of his remedial measures, should have no more concern with the aims and purposes of his patient than the surgeon who removes his appendix. He utilizes these in just the same way in his treatment as the surgeon would the position of his patient when he received a given wound. And whether the patient's wound was received in defense of his honor, or in burglarizing someone's house, does not enter as a factor in treating that wound.

As stated above, the physician's attitude is a scientific one, dealing with physiological processes; if they are mental processes, he still must maintain the causal attitude. These processes, their reactions, interaction, intensity and causes are the factors with which he deals, and these processes are the same whether the individual be king or peasant.

The aims, purposes and morals of the individual are for the moralist and minister to deal with. The physician assumes a purposive attitude only when he chooses the profession of medicine, i. e., his aim is to help suffering mankind, but his methods are entirely causal or scientific in both the determination of those ills and in the application of treatment. This confusion of the two viewpoints has had much to do with the attitude of so many physicians to psychotherapeutics. The purposive view is the one entirely taken by the lay healers, and while they confuse the two in their writings on the subject yet their methods remain all the time moral, therefore unscientific or ascientific. By this alternation between the two attitudes toward the individual, they can apparently prove anything, yet they use, as a matter of fact in all their methods, a moral one only. I can best illustrate these two viewpoints by an example.

A woman suffers from insomnia; she goes to her minister and tells him that she cannot sleep because her husband is spending all his wages in drink and carousing, and that she is worried and unable to get him to better his habits. The preacher gives the husband a lecture on the immorality of his conduct, his duties to his family, etc.; the husband ceases the practice, the wife's insomnia is relieved as a consequence. The entire episode is moral or purposive, deals with the ethics and aims, and possesses no causal or scientific basis whatsoever.

Now suppose this same woman consults her physician for this insomnia, and tells him this same story. He sees the causal features of the case; he recognizes the mental process due as it were to a fact nevertheless ideogenic, this idea disturbing the mental equilibrium through the physiology of the emotions. He sends for this same husband, not for the purpose of giving him a moral or temperance lecture, but to remove the cause which initiates the mental process which results in the wife's insomnia. He tells this fellow that his habits and conduct are responsible for his wife's condition, that he is breaking down her health and that he must stop it. His attitude and methods are causal, rational and scientific, for he may not and usually does not care if the man is consuming half the booze in the city. But he is interested when that factor is the direct cause of (the effect) the insomnia for which his services are sought to relieve. We too often hear a remark like this: "I am not concerned with the family affairs or the business affairs of my patients. I am to look after their health only." When one recognizes the fact that just such affairs are frequently directly responsible for the very condition for which his services are sought, the absurd narrowness of such remarks become obvious. We are concerned and scientifically obligated with

any affair that acts as a causative agent in producing, directly or indirectly, the symptoms which we are sought to relieve, regardless of their character, nature or content.

Case I. Middle-aged married man. Negative family history, wherein no physical or neurological predisposition existed; in fact, an excellent history, one of a robust family of nine. The date of this mental complaint ended an enjoyable life-long health. It began one year and a half ago with a deep, boring, constant pain in the right lower jaw. This pain interfered with sleep and created irritation, morbidity, sullenness, seclusiveness, and finally melancholia supervened. His relatives feared his self-destruction, so extreme seemed his suffering and his strange manner. He showed anxiety about his family, neglected his business, refused food and ceased talking except on the subject of his jaw-pain and the hopelessness of it. He consulted physicians—in fact, he ran the gamut of his immediate medical opinion, and finally refused any form of medical treatment, medicine or attendance. He lost weight, became anemic, and his depression and dejection deepened. At all times he held his jaw in his hand.

Finally his wife and brother prevailed upon him to seek relief in San Francisco. Reluctantly and indifferently he came to this city. The physician he consulted recognized, after negative examination, that the patient had a neurological basis and referred the case to us, stating that, in his opinion, the evident induration was the outcome of hypertrophy consequent upon the constant friction given the jaw by the patient.

We were immediately impressed by the striking picture of hypochondriasis as expressed in his appearance and his history. Nevertheless, diagnosis and treatment demanded complete physical examination of all systems. They were found faultless. No neurological lesion evidenced itself. The mental history of this man unfolded pertinent fact after pertinent fact, their possession bringing about a most gratifying result. His environment was that of a country life lacking educational advantages. As a youth he developed a brotherly love for a young man of his own age who was his constant companion. They shared their joys and their sorrows. Unless one exactly values this very intimate relationship of two country boy chums, one cannot fully appreciate the emotional effect upon the individual of the following events:

They constantly chewed tobacco, and as close friends they bit "off the same plug." They were both right-handed and did their biting on the same side of their jaws. The friend got into a fight, he was struck a blow on his right jaw. About this time—before or later, it matters little—the patient, while boxing with his brother, also received a similar blow on the lower right jaw. Years passed, both married, the boyhood friendship ripened with the years, and their new conditions interfered in no way with their confidence or mutual interest.

The chum began to have pain in his right jaw; physicians told him the pain was imaginary, that his jaw was all right, that he must forget it, and a host of other like advice commonly given the supposed neurotic. All of this was reported to our patient by his chum, and he was greatly exercised over the affair, for he noticed no improvement in his friend's condition, who visibly lost weight and entered into despondency. Finally the chum came to San Francisco and here an eminent surgeon by his own methods and the X-ray diagnosed an osteo-sarcoma and confirmed this by operation. The chum returned home only to develop a recurrence, and upon his next visit to this city, where after a second operation he was told how hopeless the matter was, and after a long stay and a long illness died.

Throughout all this miserable affair, our patient, our devoted, loyal, uneducated, conscientious friend was with his chum. He talked with the surgeon, he was at the operation, he suffered with his chum, and witnessed his death, arranged the services and stood at the grave. Throughout this misery he remained calm and perfectly normal, conducting himself as one overcome with natural grief.

Later our patient insidiously began to have pain in his right lower jaw. It is not germane to the case to hunt a cause. He went to a doctor; he was told there was nothing wrong, that it was all imagination; others told him this, but he was thinking of his friend and drawing mental comparisons.

With the above history, no medical man would find it much of a trick to treat this case. We set about the logical therapeutic procedure. We removed this pathogenic idea so logically built up by the patient, this poor ignorant friend of a dead chum. We pursued a logical course in its removal.

His thorough examination was explained to him in words of one syllable. The X-ray plate of his supposedly diseased jaw was shown him and other plates of normal jaws were compared and shown to be the same as his own. From leading textbooks the classical signs and symptoms of sarcoma of the jaw were read and explained, and correlated with the jaw signs and symptoms of his dead friend, and the contrast there and then established. A very simple discourse upon the origin of ideas was given him. Great weight was given **emotion** as a cause of vivid ideas and their influence on the body conditions. His ignorance was at all times kept in mind during this educational process, no other than elementary examples were presented to his understanding which was watched with acuity. The end of the treatment came when with a bright smile he said, "Well, Doc, I guess you are right, I have been a damned fool." He was told that he was not; that on the contrary he had logically though unfortunately arrived at his morbid idea and that now he had logically destroyed that idea.

He returned to his hotel; he went to the Orpheum; he resumed his marital relations which had been broken off for over a year. After a few days of pleasurable sightseeing he returned to us, bringing his radiant wife, he free from pain and she happy in his relief. He expressed as much confidence in his belief that he would remain free from pain as he had evidenced despondency in his ill fate. We were well within the integrity of our ethical law when we declared that he would remain for all time free from his pain. Twelve months later his brother informed us that he was sound in body and in mind.

PSYCHOTHERAPY IN SEXUAL NEURASTHENIA.*

By VICTOR VECKI, M. D., San Francisco.

So-called psychotherapy, popping into medical science from time to time, and certainly from time immemorial, always heralded as something new, is surely as old as the hills are. Even psychotherapy in sexual neurasthenia is a pretty old subject. In 1886, when urology was in its toddling clothes, when the subject of sexual neurasthenia was strictly tabooed in polite medical society, and when I was a modest little fellow with an enormous ambition, wrote:

"Psychical treatment is indispensable in every form of impotence excepting the organic. Psychical treatment forms in some measure the introduction and beginning of every other manner of treatment."

Further: "First of all the physician must conquer the hopelessness and distrust of his patient."

Further: "It is not uncommon that virility returns with the peace of mind."

You see, I was using so-called psychotherapy right along, and only did not know it!

Psychic treatment, however, and consequently psychotherapy, surely are wrong terms, because we know nothing about the soul, and I for one must decline to deal in souls, and therefore think calling it "mental therapy" would be far more preferable.

I beg to be excused from entering into any philosophic discussion or explanation of psychotherapy, and shall simply endeavor to discuss the question from a very sober and purely practical standpoint.

Facta loquuntur, and whoever gave psychotherapy a proper trial in the proper way, obtained the most remarkable results. Of course, like any other therapeutic measure, it has its limitations; not as narrow ones as most practitioners think, but its field is certainly not so vast as some modern psychotherapists seem to think.

Just as our own Senator Works, who was sent to the U. S. Senate against the clearly expressed will of the California people, and whom to have sent there even those who did so are very sorry, can never succeed in placing public sanitation in the hands of "Christian Science," so will psychotherapy fail whenever it moves single-handed against any disease where structural changes of tissues are caused by external violence, invasion of pathogenic germs, changes in the metabolism, in the secretion of glands, and other noxa discernible to the well trained senses of a diagnostician.

There is surely no disease, however, in which psychotherapy could be dispensed with, and that is why all successful physicians use it consciously or unconsciously right along, and this explains also the apparently inexplicable success of some under-trained fashionable doctors.

Many physicians claim that they are unable to obtain results with psychotherapy. The conceited ones, never a moment suspecting their own shortcomings in this interesting field of medical science, condemn it at once and as a whole, claiming there is nothing to it; while the other extremists, the really modest ones, bow in admiration before those few who daily perform regular miracles with suggestion, hypnotism and other variations of mental healing.

But if any one should ask who can become a psychotherapist, I would answer, "Every well trained, experienced and thinking physician." I say well trained, because it certainly is criminal that any one, and be it a U. S. Senator's own wife, should have the brazen impertinence to expose a fellow human being to any kind of mental healing without having previously acquired the knowledge necessary to discriminate between cases of sickness in which mental healing alone can accomplish anything, and other diseases where different means must be used to protect the patient against physical misery or premature death.

And when we turn to the exclusive consideration of the subject of this paper we will soon come to the conclusion that psychotherapy can do a great

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deal, but that thorough and special medical training, wide experience and formidable thinking are necessary before regular results can be expected.

The various aberrations of psychotherapy, for instance, that huge and rankling excrescence the modern witchcraft that our noble Works tries to circulate in the U. S. Senate, had scant success with the various diseases of the genito-urinary organs. A stone in the kidney, ureter or bladder, the scalding gonorrheal discharge, luetic ulcerations and endless other organic troubles of the genito-urinary organs defy any prayer; and it would hardly do that, for instance, the wife of a high dignitary should send prayers to the Redeemer of humanity to renew the vigor of an exhausted sexual system;—not to forget that most of the priestesses of this ultra-scientific healing method are so formed that all ideas of any sexual desire must speedily vanish by looking at them, and only Freud's method could eventually cancel the "painful experience."

Having used psychotherapy in sexual neurasthenia for well nigh thirty years, I came to formulate certain rules, of which I shall give you briefly the principal ones.

The first and main task is the diagnosis, and here it is that the most glaring failures can be accounted for. Every psychotherapist should be exceedingly cautious not to jump at conclusions and not to depend altogether, nor even too much upon his own diagnostic powers. Physicians who specialize in internal medicine, or head organs, or nervous diseases, or urology, or rectum, can sometimes detect ailments that explain many a case of supposed neurasthenia. The psychotherapist who does not hesitate to consult various specialists will never be in the awkward position of having treated psychotherapeutically a case of beginning serious disease of the central nervous system; a skilfully made Wassermann might frequently be a guard against the mistaking of syphilis for neurasthenia; syphilis, this most common disease, and so commonly apt to be forgotten by the practitioner!

The influence of a more or less developed phimosis and varicocele are just as frequently underestimated as they are exaggerated; and all kinds of even less important lesions must be considered. [At present the consideration of the ductless glands adds new troubles in the diagnostic of neurasthenia: hypo- and hyper-thyroidism, hypo- and hyper-pituitarism, and the interrelation of the thyroid gland and the sex functions, the interrelation of the hypophysis and the thyroid, the various forms of toxemia following the various and complicated pathological changes of the ductless glands, are of enormous importance in the consideration of our subject, and we must hesitate more than twice before we loosen the diagnosis of neurasthenia.]

Almost as important, and in the beginning mostly even more important for the success in the treatment of any case of apparent sexual neurasthenia, is to place oneself in sympathetic relation with the patient. The sexual neurasthenic is a peculiar fellow, sometimes utterly disagreeable, seldom lovable, always tedious, but always also miserable. In spite of all that, the physician who wishes to help

him must sympathize with him and befriend, yea, love him.

Any physician can automatically work himself into this state by reasoning as follows: "There are so many physicians in this city, that patient has selected me as the one to help him, he has probably been ridiculed by his family physician, presumably energetically maltreated, burned and lacerated by some one, exploited and robbed by one or two advertising quacks, he comes to me with diffidence, but with some hope, in fear, near despair; I must be his friend, and give him the confidence he probably has not, as yet."

As soon as the physician is in the proper rapport with the patient, he can exert the most powerful influence, but until the successful end of the treatment there must not be a moment of relaxation in sympathy, interest, and vigilance. The patient must always be absolutely convinced that the doctor understands his case perfectly, and is going to clear up by painstaking examination of the organs and their secretions, in the office and laboratory, the few doubtful points, and is going to cure him. Every physician must know that simple pooh-poohing or ridiculing accomplishes nothing. The patient has his own sad experiences, and no one can laugh them away.

The next step is to remove all excuses for worry, or as it is now called "unfavorable mental influences"; therefore, even small and unimportant ailments and their symptoms must be cured. Walsh summarizes every physician's experiences in that regard by saying: "The suffering in the world is out of all proportion to the actual disease," and "Many people who have little diseases suffer a great deal, partly from concentration of mind on their ailments, and partly from such ignorance of whatever pathological conditions present that they grow discouraged and morbid over it."

To my experience sexual neurasthenia is very seldom primary, but mostly a very disagreeable complication; a complication which frequently remains even after the original cause was removed. These are the cases where so-called psychotherapy can help when everything else must fail.

Some slight symptom which is easily overlooked by the normal individual but drives the neurasthenic crazy, may be incurable, and then only psychotherapy can help to explain, minimize, and when necessary, ridicule. A demonstration that such symptoms appear in other perfectly healthy individuals, whenever possible, may contribute greatly to the necessary peace of mind. [With all due respect to psychotherapy and the real and great influence of the mind upon the body, we must never lose the chance of reversing the whole reasoning and by improving all bodily conditions, weight, sleep, appetite, condition of bowels, by regulating the diet, exercise and whole mode of living, to bring into operation the not lesser influence of the body upon the mind, and according to the well-known Latin proverb, "*mens sana in corpore sano*," to place a healthy soul into a healthy body.]

Sometimes the criminal quack may have terrified the patient in order to extort more money. Every physician should be acquainted with the usual

tricks the advertising quacks use, in order to be able to unmask them, and return to many a poor fellow the indispensable peace of mind.

Even trifles should not be forgotten, the general attitude of the body must be corrected whenever necessary. When a neurasthenic is told that he cannot get well before he stands and walks erect, the head high, the face smiling and friendly, he will see to it, have some distraction of mind, besides improvement of general health and disposition.

To repeat what I preach at every occasion, I must beg of every physician again and again: Please do not hurt your patient, the urethra principally resents all and every painful local treatment; neurasthenics invariably grow worse under energetic and merciless handling, though they may crave and relish it for the time being, in hope that it will cure them.

Unless one is able to put his patient into a spectacular hypnotic or even cataleptic trance, which I was never able to do, it is best not to intimate to the subjects even in the least way that psychic treatment in any of its variations is going to be given to them. With sexual neurasthenics it would surely bring only failure.

My best results are obtained when the treatments are given in the evening, with not a noise reaching the darkened high-frequency room in which there is only the dim light of the apparatus, and even this cannot be seen by the patient, who is told that for the action of the high-frequency current and the auto-condensation, darkness is necessary. Manipulation of the high-frequency electrode through which only very weak currents pass, the muffled monotonous sounds of the motor and current and appropriate low and suggestive conversation put the patient very soon into that first dreamy, or as others call it, the hypnoidal state in which surely the best and lasting results are obtained.

Details of this my system, and some illustrating histories, I shall, if permitted, furnish another time.

Discussion.

Dr. Carl Renz: About 18 years ago, when I came to California, I applied for membership in a county society and was almost blackballed because I used psychotherapy in my treatments. I cannot refrain from saying that I am extremely gratified that there were three papers on that subject to-night. *Tempora mutantur et nos mutamur in illis.*

In regard to the last paper, that of Dr. Vecki, I coincide with his experience in treating sexual disorders, or, as he calls it, sexual neurasthenia, psychotherapeutically, even if I do not use the apparatus which he uses; but as long as he gets the hypnotic or the hypnoidal state he will have success. That anybody but a trained physician should employ psychotherapy is, of course, out of the question. His expose was excellent, only I do not like his pronouncing the words psychotherapy and "Christian Science" in one and the same breath.

In Dr. McClenahan's paper, a very good review of the present status of the question, he said nothing of hypnosis. As to his case, he certainly uses psychoanalysis, although he does not seem to be aware of this fact. The good result he had in this case is due to psychoanalysis pure and simple. There are many cases of alcoholism which will not yield to psychoanalysis alone—the majority require deep hypnosis. A great many come to the physi-

cian because they want to please some relatives or friends, but they do not want to be cured. The cure of the other case of Dr. McClenahan's was also due to psychoanalysis.

Freud has found that a number of cases of alcoholism are based upon repressed or converted painful recollections, particularly of sexual character, from early childhood. Dr. McClenahan said that only functional diseases should be treated by psychotherapy. I differ. I believe that quite a number of cases of actual organic disease can be ameliorated, especially stomach and bowel conditions and vasomotor disturbances. Du Bois is using simple persuasion, and he has great results. His personality is such that he will have success with his patients. Some years ago in Paris I spoke to Professor Dejerine about his results in cases of probias and imperative ideas, and he said they were absolutely incurable. It is almost presumptuous to differ with such an authority, but I know that such conditions can be cured by deep hypnosis. I agree in that respect with Professor Berillon, whose experience coincides with mine. I would have been glad to have heard more about Freud's theories from Dr. McClenahan, who has certainly had experience in that line.

Dr. J. Wilson Shiels: At the beginning I felt impelled to coin a long scientific sounding sentence, such as "diastolic phase of cerebral activity," and thus demonstrate my right to discuss this occult subject; but I very soon became impressed with the excellence of the papers. Nevertheless, most of this stuff is old. Shakespeare told us nearly all that has been mentioned to-night. For example, it was said that we should hesitate to tell a patient how very sick he was. William put this in a nutshell when he said:

"Bid a sick man in silence make his will,
Ah word ill urged to one who is so ill."

"Christian Science" to-night was rightly depreciated. William said this of it:

"hanging a golden stamp about their necks, put on with holy prayer,"

people were cured. The honor and religion of our profession were also touched upon. William said this of it:

"... but at his touch

Such sanctity hath Heaven given his hand they presently amend."

I have never considered this subject from the standpoint rightly taken by Dr. McClenahan, but rather as a special attribute of character given the individual to bring about trust in another. I have had some amusing instances of what might be called the psychology of sickness and treatment. A certain old woman who had suffered a continuous fever, and, as a precaution against relapse, had had her temperature taken, although normal, for some time after, became very despondent. When asked by dear old Doctor James for the reason of her depression, she answered: "Weel, sir! I'm no weel! I've no been given my meedecine regular." Dr. James immediately entered into her concern and asked the nurse for an explanation. Before the nurse could answer, the old woman did so for herself. "Never mind that hussy, sir. It's her that's neglected me. She stoppit it hersel'. I mean the meedecine under my ochster (axilla)."

After all is said and done, those who deal in the cure of conditions, either of the body or the mind, should have only one aim in view: to bring the individual so suffering back to his walk of life with ability to perform his duty to his own satisfaction. It matters very little how this is done when it is done honestly. It would be a crime to make a person weakened by disease a slave to a false method of cure having as its basis a perfidious suggestion or a treacherous drug.

Dr. Julius Rosenstirn: I would like to ask Dr. McClenahan if the mental symptoms of neurasthe-

nia should not be understood as an expression and consequence of fear. It seems to me that neurasthenics are all suffering from an inordinately exaggerated fear of some kind. In some cases it is simply the idea of a threatened loss of sexual power from some trifling ailment in the genito-urinary organs; in others a slight digestive disorder that fills them with the apprehension of some malignant growth in the stomach or intestines. A sorrow, or fear of great financial loss and distress from a lawsuit, attended perhaps by painful publicity, may in itself without any anatomical or functional lesion cause neurasthenic symptoms from any group of organs, loss of appetite, weight, etc. The effect of fear on the vasomotor centers is well known as a matter of daily experience, and it is to this chronic paralyzing effect we have to look as a great contributor, if not creator, of the complex called neurasthenia. The removal of that fear is the solution of the problem. There Christian Science celebrates her sham triumphs by giving the faithful hope and the belief that there is no real sickness and no real misfortune. If there exists an organic basis for the symptoms the physician has to remedy that, in order to remove the aggravating fear. So, whether with purely psychic treatment in ferreting out the primary reasons for a complex of harassing phantoms, or after diagnosing the primary pathological causes for the superstructure of fear, we have to get at them and remove them if we want to cure our neurasthenic patients. Let me close my remarks with a slight historical correction. Dr. McClenahan mentioned in his paper that physiological psychology is a matter of the last fifteen or twenty years. Professor Wundt, now in Leipzig, published the first edition of his *Lectures on Physiological Psychology* in 1869. It was the fundamental classic for this branch of our science and should not be forgotten.

Dr. McClenahan, closing: The position which I tried to portray in my paper is that psychotherapeutic measures are indicated in exactly the same way as are other therapeutic agents to the conditions that unfavorably affect the human being. Whether the symptoms are mental, physical or even moral or spiritual, if you please, the physician's duty and his only duty, is to search for the causative factor. If the causative factor is not strictly confined to the organism or its nervous system, but has its origin in the mental life of the individual, our position should not be altered.

We must deny the role of pathogenic ideas in the causation of a number of maladies before we can deny the clean-cut, scientific indications for mental treatment. Before the application of any treatment, the physician must determine the causal factor, and if this factor lies in the mental life or experience of the patient, he should not be denied the proper corrective measures, though they be psychic. The physician's view of the individual must be dualistic, i. e., that he has a mental and physical existence, and that disturbances have their origin in abnormal functional processes as well as in structural changes. If the disturbance has its origin in structural changes, the nature and extent of these changes is to be determined; if there is no structural alteration and the disorder is due to abnormal physiological processes, treatment is directed accordingly, regardless of whether the symptoms are physical or mental. There is no psychology that concerns the physician except that based upon the physiology of the brain; and unless he is acquainted with the physiology of that organ, he is no more fitted to treat its disorders than the internist who is ignorant of the functions of the liver. To give an individual with a clean-cut psychogenic disorder as this case whose history I have given to-night, such remedies as bromides, or even hypodermics of soda cacodylate, appears ridiculous, and yet in the absence of the facts brought out by minute inquiry into the entire mental experience,

such measures would likely have been instituted. In making that inquiry, time must not count. In this case hours and hours were consumed on various days in questioning his wife, brother and himself. To get that information practically entailed a complete history of the mental life of the individual up to the beginning of his disorder. The diagnosis of hypochondria could have much more easily been made. This condition is regarded as a fixed idea or delusion of disease, and the prognosis hopeless. Had such a diagnosis been made, and the man sent to a state hospital, there is little question but that he would to-day be sitting on a bench holding his jaw in his hand. If there was any rational way to cure this man except by convincing him of the ideogenic origin of his disorder, I confess my inability to see it.

PSYCHIATRIC DUTIES OF LARGE CITIES.*

By ROBERT L. RICHARDS, M. D., Medical Supt., Mendocino State Hospital.

To the community at large the important point about the insane is that they are unsocial or antisocial. The directing or dominating part of an individual is found in his mental faculties; when these are disturbed, his relations to others are disturbed, and he becomes unsocial or antisocial. The lack of community of interests and thoughts is one of the striking features of a hospital for the insane. The environment of these patients is parallel with that of soldiers in barracks, for example; and yet the reaction of the insane under these circumstances is radically different. Unless convalescent they rarely talk to one another, and usually on parole or in the wards each is thinking or talking about his own personal affairs, and paying no attention to anyone else. On this account, and contrary to the usual conception, a state hospital is quieter in general than an institution housing an equal number of sane people. By training and re-education is secured an adaptation to a routine way of living, and a gradual resumption of social duties. The finer adjustments of social life are the latest acquisition of the human race, and naturally the point where mental derangements are first noticed, and where recovery is last established. Hence our chief interest is in the social manifestations of the insane.

The value of heredity as a determining factor in the life of the individual has recently attracted a great deal of attention; and, indeed, its value cannot be overestimated. But whatever may be the cause, the practical question with the community at large is the social question. The fact that man acts upon and reacts to his environment is the one that concerns us in our conduct and our laws regulating such conditions. The law says that the individual must be "dangerous to health, person or property." Chronic insane, imbeciles, idiots, or epileptics who are adaptable to the social mechanism are not considered cases for commitment. It is evident, therefore, that the psychiatric duties of a community are well-defined and extensive because of the predominantly social relations of cases of mental disease.

The importance and urgency of social duties in-

* Read before the San Francisco County Medical Society, March 11, 1913.

crease with the density of population. People in rural districts come in contact with each other at fewer points and at less frequent intervals. In large cities there is scarcely a moment of the twenty-four hours when the individual is not in contact with some other individual. Since psychiatric duties are chiefly social duties, we can readily see that large cities have more psychiatric duties than other portions of the country.

When in our state hospitals we study the relative proportions of mental diseases from large cities and rural districts, we find striking evidence of the great responsibility of large cities for the mentally diseased. In 1908 in New York State the cities furnished 76.5% of the first admissions, and villages and rural districts only 23.5%. In California in the last two biennial periods the percentage of admissions from the larger cities has been 63.5% and 64.7%. If we include the more thickly populated counties, the percentage reaches 73% and 74.7%. It is noticeable in these figures that San Francisco and the Bay section are represented with 33% and 34.7% of all the admissions to state hospitals in the last two biennial periods. When you take into consideration the fact that with the opening of the Panama Canal San Francisco will in all probability speedily double in population, you can readily see that San Francisco's psychiatric duties will also double in amount.

In the last biennial period Mendocino State Hospital received 76% of all its admissions from the San Francisco section, while Napa received 53%, Agnews 49%, and Stockton 34% from the same locality. Consequently Mendocino State Hospital is more interested in and more reflective of San Francisco conditions than any of the other hospitals.

Another fact for consideration (in view of the large number of immigrants soon expected in San Francisco), is the relative proportion of foreign born among those admitted to state hospitals. At relatively the same period (1908) New York state had 48.3% foreign born among those admitted to state hospitals, and California 40.5%. Since Mendocino State Hospital represents more nearly conditions in San Francisco, it is interesting to note that in the last two biennial periods Mendocino State Hospital received 43.9% and 48% foreign born patients. Hence we believe that it is safe to say that from the standpoint of the expected rapid increase of foreign born in San Francisco the psychiatric duties will increase more rapidly than might be expected; and that San Francisco is more interested in this fact than any other portion of the state.

Having realized the special relationship of our large cities to the psychiatric work of the state, it is very encouraging also to realize that our larger cities are better able to fulfill these psychiatric duties. Large cities have richer and more highly developed governmental organizations, many organizations engaged in various forms of social work, and probably more people of means who would furnish financial assistance to meritorious projects. Hence we are fortunate in having at

the point of greatest psychiatric need the most effective means to meet that need.

The problem is largely to co-ordinate the various interests involved so that they will work in harmony, and not duplicate work, or come in conflict. The first essential to this end is some central directing point. Particularly in mental cases, with all their conflicting manifestations, is it necessary to be guided by those with special experience. It seems perfectly natural that this center should be a psychiatric hospital or wards, where the more serious cases could be cared for, the less serious be properly treated, and the work generally directed. I understand that there is now the possibility of utilizing two wards in the new San Francisco General Hospital as psychiatric wards. This is the method that has proven so helpful at Bellevue Hospital, in New York City. Probably, also, we should find here as they have found there that two wards offer insufficient accommodation for the work in hand. At Bellevue the chief alienist, with two assistant alienists, are in charge of the work, including the psychiatric division of the social service work.

In general, you can readily see that the work would divide itself under the following headings:

1st. Early treatment; which would mean for the milder cases recovery without commitment, and the shortening of the duration of the more severe cases. At present, with the short period of observation, it is inevitable that some cases are sent to state hospitals that would have recovered without commitment, with longer observation and treatment in such a hospital as this.

2nd. Out-Patient department; where preventive measures could be carried into effect, and after-care and treatment provided for cases discharged from state hospitals, but not yet adapted to their social environment.

3rd. A medical center: of value especially to those needing a closer acquaintance with the various manifestations of mental disease. Laboratory facilities of various sorts would be available or would develop. Senior medical students could come in contact with actual cases, under circumstances that would make it possible for them to study them and their manifestations profitably. Assistant medical officers in the state hospitals could be assigned here for limited periods to study the earlier manifestations of mental diseases, and acquaint themselves with the more advanced laboratory and clinical methods. The state needs some such center as this, and could afford to assist in the work because of the various benefits to accrue to the state service from this work.

The question of the method of admission of patients to a hospital of this sort has always been a difficult one. On the one hand, there is the evident need of as free admission to a hospital for mental diseases as to a hospital for physical diseases. On the other hand, mental diseases carry with them certain questions of legal responsibility that must be adjusted by a court. To accomplish the first purpose, voluntary admissions may be provided for such cases as are orderly, and willing to enter the hospital for treatment. The number of such cases

will increase as the work is better understood. Naturally, however, they cannot be retained against their wishes. The cases legally admitted can, of course, be retained by the hospital authorities, subject to the jurisdiction of the legal authority acting in the case. In California the law at present makes possible the detention of persons under lunacy warrant of arrest for a maximum period of twenty days. I understand this period may be extended by changes contemplated by the present legislature. A longer period for observation and treatment of the cases gives better results, and is ultimately more economical. In Germany the period is forty-two days. It is the universal experience that jails, courts, police, and unskilled attendants are very damaging to acute mental cases that are already alarmed by terrifying hallucinations or are full of persecutory ideas. This experience has led New York to adopt various methods of admitting mental cases to Psychiatric and State Hospitals. In New York City, when a mental case (to quote the law) "acts in a manner that would be disorderly in a sane person," the police may enter a technical charge of insanity against him, and place him in the Psychiatric Pavilion at Bellevue for observation and treatment. In addition, those interested are endeavoring to have hospital nurses deputized as special police officers, so that they may accompany the ambulance to the home and take charge of the case. Mental cases that are not disorderly (paranoid condition, for example), must appear before a city magistrate, who will determine whether they shall be committed for a period of five days for examination. City magistrates may also commit to Bellevue for an examination of their mental condition cases against whom charges are pending. Besides these methods and the regular commitment, there is in New York State Hospital an emergency commitment to state hospitals. The law is that "In a case where the condition of said person is such that it would be for his benefit to receive immediate care and treatment, or if he is dangerously insane,—so as to render it necessary for public safety that he be immediately confined,—he shall be forthwith received by a state institution . . . upon a certificate of lunacy executed by two medical examiners, and the petitioner to apply to a court for an order of commitment." These New York methods have stood the test of a number of years' experience, and merit our careful consideration as to adoption in California.

The discharge of mental cases from a psychiatric hospital depends upon the method of admission. Voluntary cases can be discharged to their friends or after-care societies, or to the court for commitment. Legal cases must necessarily be discharged with or to the authority committing them; but this does not mean necessarily that they are sent to the jail. The study of the case in the psychiatric hospital should make it so clear that only a nominal appearance in court would be necessary. Legal cases, while in the psychiatric hospital, are naturally available for the study of the local lunacy examiners, who will be aided in reaching a conclusion by the hospital study and observation.

I am informed in a personal letter that at present 75% of the admissions to the Psychiatric Pavilion at Bellevue are committed to state hospitals, and that the average admission rate is 10 cases per day. According to the report for the last biennial period, San Francisco averages 98 commitments per month. I understand that each ward in the San Francisco General Hospital is designed to accommodate 30 patients. Hence the total capacity would not exceed 60, and it is evident that not all of the present commitments from San Francisco could be accommodated for a period long enough to secure any therapeutic result. Fortunately, certain cases are plainly for commitment when received, and can be sent directly to the state hospitals. Reducing thus the number legally admitted to the psychiatric hospital, we should have, with the voluntary cases, a sufficient number awaiting treatment to fill the two proposed wards.

Experience has shown, however, other needs for these psychiatric wards. In Washington, D. C., Juvenile Court cases are sent to the Government Hospital for the Insane for the study of their mental condition, and the measurement of their mental age by the Binet scale. In New York City (as we have seen) courts send prisoners to Bellevue for a study of their mental condition. In some instances courts in San Francisco have empowered a medical commission to investigate, examine, and report upon the mental condition of the prisoner, with the result (in each case in which I have been a member of the commission) that they unanimously and promptly agreed in their findings. Such a procedure would be adopted more frequently if there were a Psychiatric Hospital in San Francisco.

There are two special reasons why psychiatric wards in a general hospital are desirable.

1st. Cases of acute delirium and other acute psychoses that may develop on the other wards are better and more safely managed in the psychiatric service. For example,—Kraepelin found that the danger of suicide was reduced 90% by trained attendants and institutions.

2nd. It is the general experience that nurses who have had experience with mental cases adapt themselves with less friction to the mental attitude of other patients.

You will no doubt agree with me that, because of the predominating social aspect of mental cases, social service work is even more needed for psychiatric wards than for the general hospital service. The social service nurse, after consulting (under the direction of the physician) with the patient on the ward, will be a welcome visitor to the house, and be able more intelligently to study and report upon the social condition in which the patient has been living. As needed, it has been found possible to secure the aid of volunteers for social work. Various benevolent organizations can be interested in securing the necessary changes and after-care for the discharged patient. Social service work with nervous and mental cases has been found also to include the securing of change of employment and environment for neurasthenics, counsel and after-

care for alcoholic and drug habitues, friendly aid for attempted suicides, and the accompanying to court of prisoners. This is all work the physicians cannot have time to do, but without which all of his study and treatment may be of no avail.

Besides the establishing of a psychiatric hospital with its various activities as a natural center for psychiatric work, a city's duties should include specific efforts to prevent mental disease, and to furnish after-care for those mental cases discharged from our various state hospitals, but not yet established in the social body. These two purposes are combined in the work of the National Society for Mental Hygiene. It has proven very successful where it is properly co-ordinated with the other phases of psychiatric work. Not properly co-ordinated, it has all the defects of the kind-hearted, well-meaning individual who wants to do the right thing, but does not know where or how. So far there is no branch of this society in Northern California; but there is a widespread public interest that needs only opportunity to become very active. Let me make clear its object by briefly mentioning the details of work along these two lines.

The prevention of mental disease is not expressed in bacteria and antiseptic solutions, but in questions of social relations, of social evils, and the remedies necessary. In summing up the etiology of mental diseases, Kraepelin says: "By far the most important causes of mental disease are represented on the one hand by alcohol (23%) and syphilis (10%) in their effects on the individual and his offspring, and on the other hand by direct heredity (30%). . . . It must be the holy duty of physicians to so increase the pressure of public opinion that the fight against alcohol and syphilis will be taken up with the same insistence and demand for relief as is the case with tuberculosis." In New York, of all the first admissions for one year, the alcoholic psychoses and general paresis formed 27.5% in the cities, and only 14.2% in rural communities. General paresis alone was nine times more common in the cities than in rural communities. The element of heredity is, unfortunately, not comparable in this fashion; but evidently this is especially a problem for cities. The fight against alcohol and syphilis is an old one; but the public knows only a small part of the dangers of alcohol and syphilis from the standpoint of the nervous system. Along the lines in which tuberculosis has been quite successfully fought, we have made only feeble attempts to attack alcohol and syphilis; and the voice of the medical profession is heard only here and there. We have need of a Society for Mental Hygiene to bring this subject to the front.

The importance of heredity is co-ordinate with that of both alcohol and syphilis. The general principles have been well understood for many years. We have just passed through a cycle of forgetfulness, however, and now the subject is so prominent that I need not urge upon you its importance or its laws. The intensive advanced work already planned will not permit us to soon again forget the value of heredity.

A fourth point, however, needs great emphasis,—

the necessity for medical guidance at the epochal points of mental development. The sound body is always necessary for the perfect development of the sound mind; but there are certain times and phases when there is special need of medical guidance. In the plastic phase of the infant's mind, general mental tendencies are easily implanted. I have seen anger at two months, and habits of life established in early months of life. When the education of the child begins, certain fundamental principles are often forgotten. Progress should rather be marked by the development of effective action than by memory acquisitions. Again, experiment has clearly shown the tiring of adults after one hour of mental exertion. A continued tiredness after a night of rest is pathological. But today there is demanded more and more continuous work from pupils in the public schools, and the voice of the medical profession is not heard. Were it not for the protective action of the loss of the power of attention, the result among these children would be more serious. Again, all children are not equally capable of development. Medical knowledge should classify them, and not over-stimulate the one or retard the other. One of the signs of hereditary taint is early tiring, and it is vastly important that those beginning life with an hereditary defect should be given a path in life where their ability will not be overtaxed, but where their maximum efficiency will be attained.

At puberty come the sex problems, and those of alcohol and syphilis, with the importance of which we are all familiar. With the passing of family guidance in adult life there are many ways that will suggest themselves in which society can help over the period of temporary stress and strain, and save a defective individual from failure. Psychiatrists have observed that the mental force of men differs greatly,—partly from hereditary influences and partly from accidental happenings at birth or in early life. Some individuals are bound to fail; but a large number would round out a fairly useful life if they received timely and intelligent aid. Lacking that aid, they often become chronically insane, and are never again self-supporting. It is all along these lines of preventing mental breakdown that the National Society for Mental Hygiene finds a wide field of influence.

In the readjustment of the recovered mental case to his social surroundings there is another field of endeavor for this national movement,—which is generally called "after-care." Having done all we can to prevent mental disease, or to lessen its severity if already developed, there remains the duty of maintaining recovery by every means in our power. That relapses are common is all the more reason for aiding those for whom too often the public increases the burden, rather than lessens it. Even discharged alcoholics tell me they have difficulty in securing employment, if it is known that they have been committed for treatment under the state law.

While this work is considered as new, its history dates back to 1841, when Dr. Falret established in Paris an after-care association and a convalescent home. In 1871 the same movement be-

gan in England, along the same lines. But it was not until 1886 in England and 1889 in France that the work spread to any extent. German-speaking countries have similar organizations to those in France and England. Japan inaugurated the work in 1902 with the establishment of an organization called "The 'Tokio Ladies' Aid Association for the Insane."

In America, this question was first agitated in 1893, and in 1897 a commission of fifty alienists reported favorably, and an association for after-care was formed; but no practical work was done. New York began the work practically in 1906. Since then, the work has been extended more widely in Massachusetts, Connecticut, Michigan and Illinois. Convalescent homes have not been popular with us because of the fundamental American feeling of independence; but personal helpfulness has been most effective and successful. Consequently, we have developed a class of skilled so-called "field-workers," who search out the weak points in the environment, the probable hereditary influences, and what social remedies could best be made use of. Naturally, they work in conjunction with the various hospitals, and some of the most valuable work in heredity has been done in this way. We find that field workers are now maintained in New York, New Jersey, New Hampshire, Massachusetts, Connecticut and Michigan. In Northern California none of this work is as yet established, although some of us have been approached repeatedly on the subject. This work should begin with the local medical society, and be closely associated with the psychiatric hospital and its out-patient department.

I have endeavored to present to you briefly, and I hope clearly, the psychiatric duties of a large city, and the needs of a large class of people whom you all pity, but whom you so far have helped very little, if any. If the medical profession urges and directs it, we know that it is perfectly possible to successfully organize a psychiatric hospital or wards, and a National Society for Mental Hygiene. If the medical profession neglects this opportunity, we shall see still further evidence of the lack of co-operation of the general public with the medical profession and its aims.

Dr. Richards' paper was discussed by Dr. W. F. Snow, who read a letter from Dr. F. W. Hatch, and Drs. D. D. Lustig, C. D. McGettigan, R. L. Wilbur, H. C. Moffitt, H. J. Waterman, P. K. Brown, H. C. McClenahan and R. L. Richards.

ARE WE DOING AS MUCH FOR THE TUBERCULOUS PATIENT AS WE SHOULD?*

By FRANCIS MARION POTTENGER, A. M., M. D., LL. D., Monrovia.

While the subject of my talk before you may be criticized because of its almost limitless scope, yet I shall attempt to treat it concretely and not in the rambling manner that might be suggested by the title. I shall attempt to discuss tuberculosis in the light of the recent advanced studies of its

pathology and to bring to your attention the breach which exists between our ability to diagnose the disease early and the diagnosis which is usually made; the curability of the disease established by the best clinical methods and the result usually obtained; and the preventability of the disease as based upon both theory and experience, and the actual prevention which is being carried out.

The more carefully we study the pathology of tuberculosis the more firmly we are convinced that there is a time when practically every case is curable if only the proper means are instituted under the proper conditions. Most of the exceptions to this statement are found in the class of early cases of tuberculosis produced by an exceptionally virulent strain of the bacillus or by the inoculation of enormous numbers of bacilli. Under all other conditions, after the infection occurs, the organism regains a temporary advantage, which, if followed up, could usually be turned to a lasting result.

The more we study the therapeutics of tuberculosis the more are we convinced that both physicians and patients are wasting valuable time at the expense of an enormous amount of effort in striving for a favorable result after tuberculosis has become an advanced clinical condition. To be sure it is worth the effort to him that regains health; but even he could have gained his result earlier and more certainly had he fought the disease in its earlier stages.

If ever we are to make headway in the treatment of tuberculosis it must come through the recognition and understanding of its early pathology. We must emphasize the latent stage of the disease. We have been so thoroughly taught that syphilis may be present without producing symptoms and yet be a dangerous disease, that this knowledge is common property. So must the same fact be impressed upon the medical profession as regards tuberculosis. Recent studies show that nearly all children are infected before the fourteenth year. A few die at once; a number heal out entirely; still a large number do not heal. The disease remains in a state of inactivity, latency, ready to heal, providing the proper conditions are brought about and ready to become active and spread to new parts in case conditions favoring this should arise. It is our duty as clinicians to recognize this latent period and see that conditions for cure are afforded the patient; and it is our further duty to watch for the first signs of such a latent focus becoming active and to waste no time when such symptoms occur in instituting the best methods of cure known to science. Delay and indecision at this time mean advanced tuberculosis and death; while decision and prompt action mean the saving of the patient.

The earliest form of tuberculosis, as we find it pathologically, is that which affects the lymphatic glands, the bacilli having passed through the tissues, usually the mucous membrane of the air passages or alimentary canal, without producing lesions, or producing small lesions as Ghon has recently shown to be the case in the lungs. This lymphatic form of tuberculosis, affecting chiefly the glands of the

*Read by invitation before the Minneapolis Medical Society May 20, 1912.

large cavities of the body, cannot be diagnosed by physical examination nor X-ray unless the glands are of considerable size, so it is not safe to rely upon such procedures; neither do they produce unmistakable clinical symptoms. Fortunately, the tuberculin test can be employed and the results obtained by it can be relied upon to give evidence of the presence of tuberculosis under these circumstances. Of course it does not locate the lesion.

Of the various methods of employing the tuberculin test, I prefer the cutaneous as suggested by von Pirquet because of its simplicity and ease of administration, although I am inclined to believe that the subcutaneous is the most reliable of all. The interpretation of the von Pirquet skin reaction is very important. I know that it is usually said that the von Pirquet skin test is of no value in adults, but this is contrary to my experience. I have found it very valuable. The statement of the worthlessness of the test in adults is based upon the fact that a very large percentage of adults will react to tuberculin owing to the fact that a very large percentage of them have been infected during their lives. I do not think that much is to be gained by a simple reaction; but, if the character of the reaction is taken into account and the time of its appearance and the course that the reaction takes, I believe that we can derive very important information from this test. According to my experience, a marked reaction to the skin test which comes on promptly within a few hours after the inoculation and increases, reaching its maximum within the first twenty-four hours, is indicative of an active lesion. A slight reaction on the other hand or one which comes on slowly, beginning to show late in the twenty-four hours and then increasing, reaching its maximum the second day or even later, I am inclined to consider as indicative of an inactive lesion. I am also inclined to believe that there is considerable evidence to be gained by the character of the reaction. A very faint reaction is more apt to be due to a focus that is not very active, while a frank reaction is more apt to be indicative of an active lesion. Of course there are numbers of conditions under which the patient will not react, such as when cachexia is present, when the patient is suffering from or recovering from numerous infectious diseases such as measles, scarlet fever, diphtheria, spinal meningitis, but notably measles. But if these exceptions are kept in mind I believe that we can interpret this reaction in such a manner as to furnish us valuable information. My interpretation of the tuberculin test has tallied very closely with my opinion based on the usual physical examination, the muscle signs and clinical history.

In my statements regarding the reliability of evidence based upon the character of the tuberculin reaction I am considering only early tuberculosis, where the test is considered necessary to confirm or disprove the diagnosis which has been based on other methods of examination. This must not be expected to hold true in advanced tuberculosis. Further, I would say that these statements apply to those patients who are in fairly good physical

condition rather than to those who are badly run down. In several instances I have found patients who were badly run down, weak, anemic, with loss of flesh, who, although suffering from active tuberculosis, reacted only slightly to the tuberculin test. During the past year I have been attempting to devise some method whereby active and inactive lesions could be differentiated. I have compared the clinical history, the physical examination, the condition of the muscles (the presence or absence of spasm) and the tuberculin test. The results of this I hope to publish ere long. From these observations I am justified in saying that the character and time of the reaction does give us valuable information.

When it has been determined that a patient is suffering from active tuberculosis, I can say, without fear of contradiction, that such a patient should be kept under a physician's surveillance until healed. I believe the same should be done in instances of latent tuberculosis although this statement I fear will provoke controversy. Why should we treat the tuberculous patient differently from other patients? Why should we not be fair to him and fair to our profession and give him the benefit of our best knowledge? The members of the medical profession are constantly looking out for the diagnosis and treatment of latent syphilis; for the prompt recognition and operation of chronic or quiescent appendicitis; for the recognition of symptoms which are supposed to foreshadow arteriosclerosis or a chronic nephritis. Then why should they not treat latent tuberculosis with the same degree of seriousness? Whether our profession agrees with me on the necessity of the treatment of latent tuberculosis or not, I am sure that it will recognize the value of the knowledge to be gained by knowing that latent tuberculosis is present, especially in children who are not developing properly. The parent or physician having such knowledge regarding a child would unquestionably be more careful with him and be more prone to suspect active symptoms of clinical tuberculosis earlier than where such knowledge did not exist.

Not only have we failed to give the lymphatic form of tuberculosis the attention which from its importance, it deserves, but we have even been negligent in our treatment of it when it spreads from the lymphatic system and attacks other parts. After it has thus extended it often assumes a latent form again, producing no symptoms that we have learned to recognize until the process has become more or less active. The presence of these secondary foci may be determined when comparatively small by careful expert examination provided they produce recognizable symptoms which direct the attention to the parts affected. It is not uncommon after these new foci have been formed for the process to again assume a state of quiescence or latency and again assume such a condition that the tuberculin test is our most dependable method of obtaining a judgment.

It can be seen from this discussion that there is much that can be done toward recognizing the early infection and preventing clinical tuberculosis

that is not being done. Our attention should be turned to the early infection, the latent condition and the early extensions of this disease that we may prevent the advanced disease that we are so often fighting now.

The diagnosis of pulmonary tuberculosis (I will now practically confine my discussion to that form) has now reached such a degree of accuracy that nearly all lesions can be diagnosed while still small and before the tubercles break down and produce bacillus-bearing sputum. That only a small proportion are so recognized is proof that the patient suffering from tuberculosis is not getting the best that we as a profession are able to give. The blame of this is not all to be placed on the profession of medicine, either; but our just proportion of blame is far more than it has any right to be. We recognize that the patient is often slow in presenting for examination when early symptoms develop. We also know that he is very prone to question an early diagnosis when made; but this does not free our consciences from the countless early cases of active tuberculosis that we as a profession are daily overlooking. It is our duty, as a profession, to diagnose correctly, nearly all cases of incipient tuberculosis that consult us. We may not be able to do it individually, but collectively we can and must. The laymen who place their confidence in us have a right to demand this much; and we, as a profession, are abundantly able to give it.

The clinical symptoms are sufficient, in most instances, to cause tuberculosis to be suspected. When suspected we have other methods of diagnosis by which we can almost positively form a correct opinion. If the attending physician is not sufficiently conversant with them, fortunately, now, we have men in every large community and in many small communities, who are capable of giving an accurate opinion. My plea for the more general use of the consultant applies equally in every branch of medicine. We too often fail to give our best services to a patient because we fail to recognize our own limitations, then fail to call assistance at the time when assistance could be of some avail.

I wish to mention a few of the more common symptoms complained of by patients suffering from early active tuberculosis. While all are rarely present, usually two or more of the following will be: Malaise, a "feeling of being run down," lack of endurance, frequent and protracted colds, hoarseness not due to laryngeal disease, slight indigestion with loss of a little weight, aching between the shoulders, tickling in the larynx causing clearing of throat or dry hacking cough, night sweats, slight rise of temperature, spitting of blood, and pleurisy. Any combination of two or more of these should make the physician think of tuberculosis and request that it be eliminated before a definite diagnosis be made. A spitting of blood or pleurisy should always be considered as indicating tuberculosis unless definitely proven otherwise.

It is probable that an explanation of the etiolog-

ical factors in the above symptoms might be of some value in facilitating early diagnosis. I believe that the common early symptoms which I have enumerated may be divided into three groups based upon their etiology.

Tubercle Toxins.

Malaise,
feeling of being run down,
lack of endurance,
nervous instability,
indigestion,
night sweats,
temperature,
increased pulse rate.

Reflex.

Hoarseness,
indigestion,
chest pains, particularly
aching of the shoulders,
tickling in the larynx,
cough,
increased pulse rate.

Tuberculous Involvement per se

Frequent and protracted
colds,
spitting of blood.

Given a suspicious clinical history the physician should examine any mucus raised from the throat, no matter how slight. A twenty-four hour sample is best and it should be allowed to stand for twenty-four hours at room temperature, or better, in an incubator so as to become homogeneous before examining. In asking for this do not be deceived by the patient saying that he does not raise anything or "it's only from the throat." Examine and see. While bacilli should not be expected regularly, they will be found often enough to pay for the trouble.

The tuberculin test should be applied as a routine measure in the examination of all patients who show signs suspicious of tuberculosis. Every physician who comes in contact with these cases should know how to use this test, or if he does not know he should refer them to someone who does. If a given patient should show a reaction, then it should be determined, according to the plan mentioned above, whether or not the case is active or quiescent.

If possible, in all cases the lesion should be located. The lungs should always be examined where tuberculosis is suspected. In reference to the examination of the lungs it seems necessary to still emphasize the necessity of examining the chest bare. While nearly every chest specialist of any note does this, I find many men who, for lack of training and experience, would have far more difficulty in giving an opinion, who persist in making chest examinations through clothing. It would seem needless to say that such an examination is not worth the dollar or two dollars charged for it. One who is not constantly examining for the fine changes in the lung should not be expected to find early tuberculosis by percussion and auscultation. This is no reflection, simply a truth, which must be recognized; for, if a man depends on his chest examinations and finds nothing and gives his opinion that tuberculosis is not present, he will do his patient untold harm. It is not an uncommon thing for a physician to suspect clinical tuberculosis by the clinical history, then, when he examines the chest, finding nothing, reverse his opinion. He should not do this. He should not allow his judgment to be overturned and his opinion to be

changed by his failure to find the early changes that occur in the lung in pulmonary tuberculosis.

I would suggest two signs; one an old one for which I offer a new explanation, the other a new one which was first described by me, as offering great aid in diagnosing early changes in the lung. When these are once appreciated, I feel sure they will greatly facilitate early diagnosis. These signs are lagging of the affected apex and side, and spasms of the muscles covering the apex. Both of these, according to my view, are due to the same etiological factor—a reflex spasm, the production of which is analogous to the spasm of the abdominal muscles in intraabdominal lesions. They are described as an expression of nature's attempt at defense and are able to produce a considerable degree of rest for the affected side. The reflex is caused by the impulse which is produced by the inflammation in the lung and carried to the cord by the sympathetic fibres. There it sets up an irritation in the cord which affects the cells from which the motor fibres take their origin, thus producing an irritation of these fibres which go to the muscles. The trapezius and sternocleidomastoideus are the two muscles which best show the spasm. They have a second reflex path through the spinal accessory, fibres of which supply these two muscles and are also found in the vagus. Experience shows that those muscles which take their nerve supply from that portion of the cord which receives the impulse from the lung, are disturbed in their equilibrium. This is shown as a contraction or spasm when the inflammation first starts or while it is in a state of activity, and in a state of degeneration after the disease becomes chronic.

The muscles which are usually disturbed in their action in early apical lesions are the diaphragm which is supplied by the phrenics which take their origin from the third and fourth and fourth and fifth cervical roots, scaleni, sternocleidomastoideus, trapezius, levator anguli scapulae, all of which receive their nerve supply from the second to fifth cervical segments of the cord, this being the portion of the cord which receives the impulse from the lung. The spasm of these muscles then is found whenever an inflammation exists in the lung. This spasm may be detected in the muscles covering the apex both by inspection and palpation. On inspection oftentimes the sternocleidomastoideus, scaleni and trapezius stand out more prominently than they should and on palpation are distinctly firmer than normal. The altered function of the diaphragm results in a lagging of the side of the chest involved. This shows itself not only in the lagging of the apex but lagging of the entire chest wall.

In order to determine the condition of the muscles it is necessary to have the patient stripped to the waist and sitting comfortably on a chair with his hands in his lap so that all the muscles are relieved of tension. I believe that these phenomena when once understood by the profession will add greatly in the early diagnosis of tuberculosis.

Early diagnosis should bring early treatment

and early intelligent treatment means the cure of a very large percentage of those suffering from clinical tuberculosis. The early treatment of incipient tuberculosis means a favorable result in from seventy to ninety per cent. of cases. The most intelligent treatment of the far advanced cases means a failure to obtain a healing in from seventy-five to ninety per cent. of cases, according to the statistics of various institutions. It is necessary that the medical profession should understand this and give these patients the benefit of treatment at the proper time. The treatment of tuberculosis at best is a tedious and costly process. The cure is slow, and, if the disease becomes advanced, it is very uncertain; and, it is attended by so many complications, discouragements and disappointments that it is difficult to keep the patients good long enough to get a favorable result. It is the duty of physicians and laymen to co-operate thoroughly so that we may give those suffering from this dread disease advantage of the best scientific treatment that we are able to administer during the early stage of this disease when it is possible to restore nearly all to health and usefulness.

As a profession we know a great deal about the prevention of tuberculosis. We feel confident that theoretically it can be prevented, but actually the prevention is taking place very slowly. To be sure the disease is lessening, but it is not lessening to the extent that it should with the knowledge that we possess. With a thorough recognition, however, of the character of tuberculosis, its early lymphatic stage, its latent stage, its slow advancement into other parts of the body, and a full recognition of our ability to diagnose the disease before the marked clinical symptoms have appeared, and a thorough comprehension of what can be done in the treatment of early cases, the future should promise a more rapid decrease in morbidity and mortality.

INTER-AURICULAR OR INTER-VENTRICULAR DEFICIENCY OF SEPTUM? A QUESTION OF DIAGNOSIS.*

By DR. WM. WATT KERR, San Francisco.

The symptoms and physical signs in this case indicate a septal deficiency but it is difficult to decide whether the communication is inter-auricular or inter-ventricular. The dusky color is comparatively slight, the mucous membranes are dark red not blue, the patient never has suffered from an abnormal degree of dyspnea on exertion, he can perform his daily work even when it is laborious as actively as any of his associates, and very frequently after working all day he has run out to the Ocean Beach and back again, a distance of more than six miles, just for the pleasure of the exercise.

The area of cardiac dulness, as marked by

* Read before the San Francisco County Medical Society, November 5, 1912.

percussion, shows a slight increase to the right side, while the left border at its outermost point in the fourth interspace or under the fifth rib is one quarter of an inch beyond the nipple or five and a half inches to the left of the mid-sternal line. A systolic murmur is heard at the apex and is propagated into the left axilla and also to the right for about two and a half inches, after which it almost disappears. At the left border of the sternum and fourth intercostal space another systolic murmur is heard which increases in intensity on ascending the sternum until it attains its maximum in the second left space close to the sternum and is almost equally clear on the right side below the second costal cartilage and in the first space, but is not propagated into the vessels of the neck nor does it extend for any distance on the chest wall. Probably the murmurs at the base and apex are distinct, as it is not likely that a bruit produced at the base would have its maximum intensity at the apex and be propagated round into the axilla. Therefore in this case we appear to have mitral incompetence, a deficient septum, and a murmur at the base, the cause of which has to be explained.

In a case of patent foramen ovale without any other lesion, unless the opening is large, there need not be any great admixture of the contents of the two auricles as they are of equal capacity, equal power, and contract simultaneously so that the blood flows freely through the auriculo-ventricular orifices into the ventricles and in this way there may not be any symptoms of the defect. But should there be any obstruction to the flow of blood, such as stenosis or incompetence of either the tricuspid or pulmonary orifices or valves, then the flow of venous blood from the right auricle will be retarded or blood will be regurgitated into it from the right ventricle so that the pressure will become greater on the right side of the septum during both *auricular diastole* and *auricular systole*; therefore during auricular diastole, which in part is synchronous with ventricular systole, the tendency will be for the pressure in the two auricles to equalize themselves by a varying amount of venous blood flowing through the opening into the left auricle, thence into the left ventricle and systemic circulation, producing cyanosis and dyspnea. During auricular systole the increased pressure on the right side will be relieved either by an additional amount of blood being forced through the auriculo-ventricular orifice or through the septal opening or back into the veins of the neck. The effect of a mitral lesion such as we are presumed to have in this case will be altogether different,

for the mitral regurgitation taking place through ventricular systole, which is partially synchronous with auricular diastole, raises the pressure in the left auricle and the natural tendency is for this to equalize itself by the blood flowing through the open septum into the right auricle. As this is arterial blood, the backward flow is not productive of cyanosis, nor will there be dyspnea unless the degree of mitral regurgitation is so great as to deplete the arterial system; furthermore, the disastrous results of backward pressure in the left auricle, pulmonary circulation and right ventricle, which usually are consequent upon mitral incompetence, will be considerably diminished as much of the regurgitant stream must be short-circuited back from the left to the right auricle where it cannot do harm and does not interfere with the oxygenation of the blood or offer any impediment to its flow through the lungs.

Let us now assume that the inter-auricular septum is perfect and that the deficiency is in the septum between the two ventricles.

If there is no obstruction to the flow of blood through the pulmonary artery and lungs, the right ventricle will not have any difficulty in discharging its contents into the pulmonary circulation when the pressure is relatively low. There is very little tendency for blood to pass from the right to the left ventricle during *ventricular systole*, indeed the greater contractile force of the left ventricle, which stands to that of the right ventricle in the proportion of 140 to 60, as measured in the heart of the dog, produces just the opposite result, so that part of the contents of the left heart pass through the open septum into the right side, while the remainder goes onwards through the aorta. As both sides pass into systole at the same time the contraction of the right will offer sufficient resistance to render the amount of blood transferred from left to right insignificant if the opening be small, and consequently the presence or absence of symptoms in an uncomplicated case of imperfect interventricular septum will depend upon the size of the opening and the ratio between the force of the right and left ventricular contractions. The recognition of this fact is of the utmost importance because it explains to a very great extent both the improvement and the deterioration that is sometimes seen in the patient's condition according as his heart muscle has retained its tone or is threatened with exhaustion. During the systole of such a heart as we have under consideration the effort of the right ventricle to contract is opposed by the stream entering it from the left ventricle and the volume and force

of this stream may be such as to overpower the right ventricle from the outset, so that the case will soon terminate disastrously. On the other hand, with a stream of less momentum than the former the tendency is for the right ventricle to undergo hypertrophy in consequence of the extra effort it puts forth, and, as this is favored by the inactivity of infancy, the right ventricle gradually approaches the left in contractile power and is more able to resist the entrance of blood from the left side of the heart.

"Ventricular septal defects may exist without producing any change in the heart chambers, but they lead, more frequently than do defects of the inter-auricular septum, to hypertrophy and dilatation of both ventricles and especially of the right" (Osler, *Modern Medicine*, Vol. 4, p. 357). During ventricular systole in such hearts the flow of blood is from left to right ventricle, but during diastole both are filling with blood so that arterial and venous blood must mix to a certain extent just as the contents of any other two vessels with open communication could not be entirely prevented from mingling. But another factor at work is the negative pressure which exists in both ventricles when they relax at the very beginning of diastole; this is greater on the left than on the right side of the septum and consequently some venous blood will be drawn through the opening from the right to the left side of the heart. For these two reasons admixture must take place so long as there is any deficiency in the septum, the degree depending upon the size of the opening; in addition to these, the more rapid filling of the right ventricle will lead to diminished aspiratory power and delay the blood in the veins, so that as a result of these various causes dusky complexion and a peculiar redness of the mucous membranes are present even if cyanosis be absent.

When valvular lesions at the pulmonic, mitral or aortic orifices are associated with a defective inter-ventricular septum the condition of the patient is much more serious. Stenosis or incompetence at either the pulmonic or mitral orifices will raise pressure in the right ventricle during systole, and therefore, there will be a very great tendency toward the production of incompetence at the tricuspid orifice with its consequent venous plethora.

Lesions at the aortic orifice act differently. Aortic stenosis or incompetence raises the systolic pressure in the left ventricle, and this additional strain upon the defective septum stretches the opening to a greater degree so that the septum has been found in the form of an open funnel projecting into the right ventricle. The increase in the size of the inter-ventricular lumen permits of a greater mixture of venous and arterial blood during diastole, and a corresponding increase in cyanosis or dyspnea.

Such, probably, are the changes that take place in the circulation under these different conditions, but the fact must not be overlooked that both in inter-auricular and inter-ventricular patency a mixing of venous and arterial blood must take place during *diastole*, the extent of the process vary-

ing with the size of the opening connecting the two chambers.

The statement is not infrequently made that it is impossible to distinguish between the murmurs of uncomplicated inter-auricular and inter-ventricular deficiency because both of them are systolic in rhythm. It is difficult to accept the last portion of this statement because a murmur in a *simple* case of imperfect foramen ovale suggests a difference in pressure between the two auricles, and if this were due to difference in form of auricular contractions the rhythm would necessarily be auricular systolic.

Since the auricle is undergoing diastole throughout the entire period of ventricular systole and even through the greater portion of ventricular diastole, a murmur ventricular systolic in rhythm can only be produced in the auricles when some additional lesion exists that is capable of producing a considerable increase in diastolic pressure in one or other of the auricles. That the co-existence of such morbid anatomical changes at the valvular orifices, or a persistent ductus arteriosus, is the rule and not the exception is a fact established by autopsy records and reference will be made in a subsequent part of this paper to the manner in which they produce an auricular septal murmur ventricular systolic in rhythm. In an uncomplicated case of open foramen ovale very often there is an entire absence of murmurs.

The bruit is more frequently present in inter-ventricular deficiency where the great difference between the left and right ventricles in contractile power is more liable to generate a murmur than in the case of the auricles where the force of contraction is practically equal.

In cases of imperfect ventricular septum where the diagnosis has been confirmed by autopsy, the systolic murmur was heard all over the precordia but had its maximum intensity to the left of the tricuspid area; nevertheless it is to be expected that this will be liable to some slight modification according as the opening is situated high up or low down in the septum. Roger, by whose name this murmur is sometimes designated, assigned the murmur to this area but claimed that instead of being systolic in rhythm it lasted throughout the whole cardiac cycle, fading away toward the end of diastole. Such a murmur can be heard when an auriculo-ventricular as well as an inter-ventricular opening exists; or when there is an associated patency of the ductus arteriosus; or in the absence of double lesion it is possible that the alternating positive and negative pressures in the left ventricle may be sufficiently great to maintain a to and fro stream through the septal opening similar to that which takes place in combined stenosis and incompetence at the aortic orifice.

The difficulty in reaching a satisfactory conclusion regarding this subject lies in the fact that in a great proportion of cases the diagnosis was not followed by autopsy, and when reports of autopsies can be obtained the clinical description of symptoms and signs are lacking in precision.

What can be offered to explain the systolic

murmur heard at the base of the heart? You may remember that the systolic murmur heard with maximum intensity in the vicinity of the apex almost disappeared at a point two and a quarter inches to the right of the apex; but that over the sternum in the tricuspid area a feeble systolic murmur could be heard which became more distinct farther up the sternum, reached a maximum intensity, with very limited distribution, in the second left interspace close to the sternum, and was almost equally well heard at a corresponding point in the first and second right interspaces. I believe that this bruit occurs in both auricles as a result of an imperfect septum and mitral incompetence. It must be remembered that auricular diastole commences at the same time as ventricular systole, consequently the regurgitant mitral stream will in the left auricle encounter blood coming from the pulmonary veins and open foramen. The meeting of three streams coming from different directions can hardly fail to generate fluid veins which will be communicated to the contents of the right auricle and to the auricular walls; the points of maximum intensity of this murmur correspond to the appendix of the left auricle and upper part of the right auricle. Assuredly it cannot be due to pulmonary stenosis because the other physical signs and the dyspnea on exertion, which is invariably associated with that lesion, are entirely absent; whilst the limited area of its distribution and the absence of its propagation into vessels of the neck would be opposed to the idea of its being aortic in origin.

It is not possible to be certain whether the septal defect is in the auricle or ventricle but there appear to be several points in the case that indicate the existence of a patent foramen ovale in addition to the fact that the patient was a "blue" baby.

It is generally admitted that a defect in the inter-auricular septum is more common but much less liable to produce symptoms than an opening between the ventricles, and it is only in keeping with these facts that we should find a very large majority of the recorded cases of defective septum, in which the patient lived to old age and presented few if any indications of circulatory disturbance, demonstrated by autopsy to be of the auricular variety. The frequency with which this lesion is found may be best indicated by the following statistics. "Among 711 adults Zahn found the foramen ovale open 139 times, and among Adami's records of 1374 autopsies at the Royal Victoria Hospital, the foramen was patent 199 times (14.5 per cent.)." (Osler's Modern Medicine, Vol. iv, 349.)

The ability of this patient to undergo severe physical exertion without suffering any inconvenience would suggest that the trouble is in the auricle rather than in the ventricle. A defective inter-ventricular septum produces very much the same results as mitral incompetence so long as the tricuspid valves remain competent, and as it does not obstruct the circulation in the lungs the patient may not suffer any inconvenience when at

rest, although he generally becomes dyspneic on exertion. It is probable, however, that this patient suffers from mitral incompetence and, if in addition to this an inter-ventricular opening exists, the combined strain of the two conditions upon the right ventricle, together with the obstruction to the circulation through the lungs would make him incapable of undertaking the work which he now performs with ease. It is interesting to note in this connection that my interne, Doctor Prince, called my attention to the fact that the patient is less cyanotic when up and assisting in the ward work than when lying at rest in bed, and this is just what we have reason to expect in a case of open auricular septum complicated by mitral incompetence because when the heart contracts more vigorously under the stimulation of exercise, more arterial blood will be driven back through the opening between the auricles so that the blood which enters the right ventricle is already partially oxygenated. In short, as a result of this double lesion some of the blood passes through the lungs twice before entering the systemic circulation. Possibly Senac refers to this class of cases in the observation that "when the foramen ovale remains permanently patent it allows of prolonged diving, and even of suffocation up to a certain point." (Gibson, Diseases of the Heart and Aorta, 302.) Lastly, the systolic murmur at the base, in the absence of signs of injury to the pulmonic or aortic valves, suggests auricular rather than ventricular disturbance, if we are correct in believing it to be indicative of mitral incompetence.

PROSPECTS AND RETROSPECTS.*

By A. BARKAN, M. D., San Francisco.

This sketch of forty years' experience as a teacher and a specialist for eye, ear, nose and throat in California was prompted by a friend, who asked to have it put before the medical profession of Vienna with whom I studied and worked forty years ago but from whose ways and works I have diverged under the influence of different conditions and obvious necessities. Although a specialist, I cannot avoid including general medicine in the field of my consideration, but I shall avoid figures and names—I shall present only those general ideas that my life-work as a teacher and a physician have brought home to me, with such facts (outside of my own experiences) as my trips and visits to the medical centers of the East have enabled me to gather through personal observation.

When I arrived in San Francisco forty years ago fresh from the school of von Arlt and Jäger the entrance requirements of schools of medicine amounted to nothing worth mentioning. Lectures and clinics were prescribed for seven months of two consecutive years, a preliminary course of three months was not obligatory,—at least not in San Francisco. All subjects were taught simultaneously from the very beginning of the first year. Lectures on anatomy and physiology went on parallel with

* Translated from an essay in the Wiener Klinische Wochenschrift, No. 27, 1912.

each other and with the clinics for surgery and for internal medicine. The specialties were taught in the second year. If I remember rightly the greater part of the lectures and courses of the second year were simply repetitions of those of the first. Teachers were also examiners and examination was followed by immediate practice. This, at that time and for a considerable time afterwards, constituted the training of a practitioner.

The old custom of apprenticeship, originally English, was frequently followed. The student had a preceptor to whom he gave his services as office-boy, dispenser, coachman, and general utility man in return for such teaching as his master could give. Most, perhaps all medical schools owed their origin to a corporation of physicians bent on their own medical improvement. These petitioned the state legislature for the right to incorporate as a medical school, a petition which was a mere matter of form. In this way the easily established school acquired the right to grant diplomas. It was subject to no other criticism than public opinion, the judgment of outside members of the profession, often its bitter opponents, and its own conscience. It was under no official control; neither city nor state cared about the efficiency of its teaching or the value of its diplomas; they gave it neither financial aid, moral support, or legal supervision. The running expenses were met by the students' fees. Almost all the teachers, certainly the clinical ones, gave their services gratis; any surplus in the treasury accrued to them as dividends. Doubtless some of the teachers had this dividend in view when they gave their services, but this was certainly rare. Cooper Medical College had not paid a dividend for the last thirty years, and even before this time the dividends were very small. Paid professorships were gradually established for the theoretical branches, hospitals were built and furnished, clinics were scientifically equipped. It was a pleasure to see the results of one's own efforts turned little by little toward the improvement of teaching facilities; dollars could not repay the satisfaction felt at seeing these old pioneer teachers give their services so cordially and enthusiastically. California was at the time of which I write scarcely twenty years old, everything crude and primitive.

In spite of the ridiculously brief course of training and the apparently absurd way of teaching everything at once (but perhaps just *because* of this way of teaching) the students of those days knew how to accumulate an astonishing quantity of important knowledge, of "medical facts"; and not a few thus trained under the old regime qualified later as competent physicians and surgeons.

Ophthalmology and otology were taught and practiced together. Clinical instruction in these branches was perforce preceded by a short introductory course on the anatomy and physiology of the organs of special sense with demonstrations. The students learned to use the simple lens, learned lateral illumination and the use of the ophthalmoscope; at the end of the second year the talented ones were able to recognize the simpler ophthalmoscopic findings. Clinical material was sufficient for

the training of the general practitioner, particularly of the country physician and the mining-camp surgeon, the more important diseases of the outer eye and of the middle ear being sufficiently represented. Interest in the field increased rapidly as work progressed. A rapid, although perhaps merely temporary cure of a case of conjunctivitis or keratitis eczematosa (or scrofulosa, as it was still termed by v. Arlt), a good cosmetic result after an operation for squint, a certain assurance in diagnosis and prognosis, and a careful and methodical examination, then as now characteristic of the Vienna school, never failed to attract and to interest the students. Senile cataract and glaucoma were rare in those days. The lust for gold had brought only active and sturdy young men to California. Luetic diseases, trachoma (mostly imported by the Chinese coolies) and traumatic affections of the eye-ball on the other hand abounded. Frequent altercations over "mine and thine," often accentuated by a prodigal use of whisky, brought fists, knives and revolvers into ready play,—altercations whose objects varied from a horse to a gold mine or a woman.

My students were diligent young men who had left all kinds of occupations to study medicine:—no, scarcely *study*, rather to listen at the portals of medicine. They soon noticed that the correct recognition and the proper treatment of many diseases of the eye and ear would materially aid them in their practice in remote country and mining districts. They were industrious and quite unconsciously caught, and became imbued with my own readiness to help the sick, particularly the indigent blind. Crowded close around me, as I myself had crowded with my fellow-students close round v. Arlt, I made them see and taught them to observe; anatomical and physiological data were interwoven as much as possible with the clinical instruction, and the results attained were quite satisfactory.

The study of ophthalmology in the larger Eastern schools, which at this time counted several competent ophthalmologists among their faculties, was not very different. Not nearly the stress was laid on ophthalmology that was laid on gynecology, a specialty for which the American has ever shown particular fitness. The student learned a little of ophthalmology and otology at every medical school, but very few specialists were trained until Knapp, whose activities fostered, guided and modeled American ophthalmology, appeared in the field about 1868-69. He established his "Ophthalmic and Aural Institute," trained a series of competent assistants and founded the "*Archives of Ophthalmology*" (Knapp's Archives). His untiring industry, his work, eminent both practically and scientifically, his incentive, often his corrective criticism, created a school, and elevated as with a single impulse the whole status of American ophthalmology.

At this time a Renaissance in medical education took place in the East, and California too, termed by the water-color painter Hildebrand the cloaca for European and Asiatic refuse, began to look toward its own purification. It was surely necessary, for there were no restrictions upon practice

and a large percentage of medical practitioners was unqualified. The leading exponent of that fashionable form of the healing art styled Homeopathy, who enjoyed the practice of the most elegant circles, particularly of American ones, was, I was told, a former German horseshoer—and let it be said, an honest fellow with great desire for improvement and the possessor of an excellent medical library. The busiest oculist was a quack, one of many charlatans, but he too had picked up some little knowledge as orderly in a hospital. The "King of Pain" and I made our entry into the city of my dreams on the same day. In an open chariot, drawn by four white horses, he drove about, a tall, pallid fellow, with a curly peruke and most solemn aspect; like a king of graciousness rather than of pain he dealt out his all-healing elixir at a dollar a bottle. However, eagerness to explore the newly discovered land of gold and love of adventure had lured not only quacks but a considerable number of well-trained and gifted physicians both from the Eastern states and from England and Germany. Many of these when they first arrived worked with pick and shovel, or washed gold from the little streams of the Sierra Nevada. They won and lost fortunes and finally threw themselves into the sustaining arms of the practice of medicine. One and another among them was competent as an oculist, and practised ophthalmology along with general medicine. The considerable legacy left the Society of German Natural Scientists and Physicians (*Gesellschaft der Deutschen Naturforscher und Aerzte*) was the bequest of one of these pioneer colleagues, Dr. Trenkel, a son of the Schwarzwald, excellent as man and physician alike, and ever ready with true fraternal cordiality to smooth the path of his younger confreres. So we had a motley medley of competent and decent, of unscrupulous and ignorant doctors and of those who called themselves such; of oculists, of pink-eye-specialists, and salve-spreaders.

Gradually, very gradually, in the early '70's the process of purification set in, and the medical field of battle was little by little cleansed of its hyenas. Public conscience awoke. A medical course of three years was made obligatory, the state-board examinations were made more rigid and a proper division of the course of study began to take place. About this time the need of post-graduate courses began to make itself felt in all branches of medicine. Colleges were founded for this purpose, particularly in the medical centres of the East, and equipped with teachers, many of them well-trained for their work. At this time, about 20 years ago, specializing began in all branches of medicine. Physicians and surgeons trained hurriedly and superficially in accordance with the slender demands made of them began to flood the country in hordes as specialists of all kinds—among them oculists and aurists. It was fortunately the more mediocre part of the profession that engaged in this hurried and short-sighted career, for at this period the number of academically-trained and well-prepared young Americans that one met in the courses and laboratories of Europe, and particularly of the smaller German universities, began to increase. My

alma mater Vienna, especially, offered courses adapted to American needs and attracted a great number of the younger American physicians.

And so I, too, shared the lot of those teachers whose pleasure it is to see former assistants grow to be successful rivals—the more so as almost all of my assistants devoted years of diligent work under the trusted masters of my old Fatherland to this end.

The competition that comes from the machine-made specialist of our post-graduate courses is less gratifying. It is thanks to them that there is no little town of a thousand inhabitants that does not boast of one or more oculists and aurists; every country jeweler is an optician or was one until the recent regulation of the optical trade by optometric societies.

And now a word or two on a subject very near to me. What is the ultimate reason of the faultiness hitherto so often evident in medicinal education?—an explanation that applies frequently at least to our Californian conditions. The canker lies in our free grammar schools, so often lauded by American voices, so often found wanting by others. Eight years are spent in acquiring a very mediocre elementary training. The teaching staff of most of our schools consists of underpaid girls and women. "The most precious asset of a nation, the education of its children, is put into the hands of women" (I quote Professor Münsterberg of Harvard in spirit if not in the letter) "because their services cost town and state less than the services of male teachers." The result is easy to foresee; machine-work and superficiality are rife, the plastic mind of the child is rolled out thin and squeezed flat.

Under guidance of competent male pedagogues the material which is now spread over eight years could easily be assimilated in four and the remaining four precious years could be devoted to more advanced, maturer work. But not alone is the school to blame. The root of the evil extends to the family. Girls as well as boys, accustomed to independence from early childhood demand recognition of their individuality from their parents. The young citizen in knickerbockers, the schoolgirl in short skirts, who attains her majority at 18, want to be taken seriously. Family discipline is lax, respect for parents and teachers often wanting; study and obedience are regarded as uncongenial things by the child. The principal task of the school, that of teaching the child to think, is scarcely met. At a time when a thorough general foundation should be laid by pedagogically-trained, earnest men, most western grammar schools show a lamentable deficit. The next four years of high school are much more useful. They are approximately comparable to the second, and as regards physics and mathematics to the first classes of the German "Gymnasium." The teachers are mostly men and the results correspondingly good.

With the new entrance requirement of a preparatory college course and the extension of the medical course to four years the first-year American medical student is at least the equal of his German or Austrian colleague in his knowledge of the natural

sciences, lagging behind him a little only in the classics. It is unfortunate that the specialties do not take the place in this new curriculum that their importance demands. Instead of the two semesters of ophthalmoscopy and operative surgery of the eye required in Germany we have the system by which groups of 6-8 students have not more than 25 hours section-work with perhaps one additional lecture a week for but one semester. It is clear that not much can be accomplished in so short a time. This must soon change. The conviction must soon prevail in leading university circles that much more time and more careful methods are necessary in order to do justice to the two important specialties and to arm the general practitioner with the knowledge he needs in order to successfully cope with the prevalence of preventable blindness and the loss of life through neglected disease of the middle ear. The change is near at hand; the fifth medical year is rapidly approaching and with it more time for study and the separation of the two specialties. With the ubiquitous growth of laboratories a more thorough specialistic training in physiology and pathological anatomy will be developed, accompanied by more careful inquiry into each individual case and a closer connection with general medicine. The man intending to engage in one of these specialties should spend two or three years after graduation as assistant in physiology or pathology and then, and only then, work steadily under the strict but encouraging guidance of a master-teacher. Cut off four years from the grammar school and a young practitioner can, if he work steadily from the beginning, acquire a full training before he reaches his thirtieth year.

Last but not least: May our younger colleagues not lack ideals. What more beautiful or more satisfactory life-work than that of the eye or ear surgeon—the conservator and guardian of those organs of special sense on which our happiness and usefulness depend? May the more thorough training in these specialties at home and abroad accrue to the weal of suffering humanity.

Carlsbad, May, 1912.

GRANULOMA INGUINALE TROPICUM.*

By D. FRIEDLANDER, M. D., San Francisco.

The only excuse that I have to offer for the presentation of this paper, since it carries nothing original with it, is the fact that this disease is so infrequent in the temperate zone. In view of the constantly increasing number of tropical affections with which we come in contact, it seems to me that a résumé of the subject, together with the report of two cases occurring in San Francisco, might be of interest. The histories of the two cases are as follows:

Case No. 1. Well developed, well nourished Jamaican negro, age 34, service of Dr. Hyman at the City and County Hospital. Usual diseases of childhood, gonorrhea five times, syphilis ten years ago, treatment consisted of internal medication for about six months. Present lesion commenced as

a nodule on the penis, about two years ago, and has practically amputated the same with the exception of one inch. The stump of the penis is now healed. No evidence of disease of the internal viscera can be ascertained, nor is there palpable glandular enlargement in either groin. The patient presents an ulcer on the pubes about two inches in length, slightly indurated, with somewhat elevated, papillomatous border, and flabby granulated base, and watery, foul secretion. (Fig. 1.) The scar on the inner side of the left thigh is apparently luetic in origin, presumably the result of a gummatous lesion, occurring four years ago, and healing under anti-luetic treatment. Wassermann reaction is negative. Thirty inunctions and K. I. were administered without benefit, as well as dressings with calomel.

Sections, examined by Dr. Dickson, show the picture of a chronic granulating process of the skin; no spirochætae present, but, in addition to the usual pus organisms, bacilli were found resembling *b. malleus*. Treatment: Dr. Hyman excised the lesion, which healed under simple sterile dressings.



Case No. 2. Cuban, age 26, cigarmaker, slight development, fairly well nourished. Gonorrhea once, three years ago, denies syphilis. Patient states that about three years ago he noticed a few dark spots in the groin, "which afterwards became like a boil." After being scratched, the lesion opened and discharged, and the ulcer so formed has spread by continuity until the present condition presents. No evidence of disease of the internal viscera presents, no palpable enlargement of the glands of the groin, or palpable lymph strings. Wassermann negative.

The lesion consists of an ulceration in the right groin, about three inches in length, and varying from one-half to one inch in width, following the general direction of Poupart's ligament. It has a raised papillomatous border, a granular base, with portions presenting a papillary overgrowth, and occasional islets of epithelium, while the outer end of the ulcer is partially cicatrized. Thirty inunctions, K. I., calomel dressings, as well as com-

* Read before the Medical Section of the San Francisco County Medical Society, September 3, 1912.

presses of bichloride, were without effect, as was 0.6 salvarsan. Excision, plain sterile dressings, healing.

Sections of the excised tissue were practically the same as in case No. 1, no tubercle bacilli, no spirochætae, no Unna-Ducrey bacillus were found, nor were the b. malleus-like organisms seen in case No. 1 observed. The cutis showed a dense infiltration, consisting mainly of polynuclear round cells, extending into the papillae, and, to a variable extent, into the lower layers of the subcutaneous tissue, also a considerable increase in the length of the papillary bodies and interpapillary processes. The elastic tissue is broken into short strands, and is swollen, and, in the denser parts of the infiltration, can be seen lying in all directions, instead of following the surface of the skin. There is no tendency to caseation, but large quantities of free pigment are present, and the blood vessels and lymph channels are surrounded by a dense infiltrate.

The typical course of the disease is the appearance of a small papule, apparently beginning in the cutis, situated on or around the genitalia, which increases in size to form nodules which are arranged in linear formation. These nodules are of a pinkish color and smooth, shining surface, and, sooner or later, excoriation of the summit of the nodule occurs, either as the result of abrasion or due to the pressure of the infiltration, which is soon followed by ulceration. The ulcer is fairly shallow, has a granular base, with a raised papillomatous border, and secretes a watery discharge with a decidedly offensive odor.

The disease is confined to negroes, or those of negro descent, residing in the tropical regions, and the only cases observed in the temperate regions are persons who have resided in the tropics, with the exception of one case reported by Pollitzer, where the patient was a Caucasian, who had never been in the tropics, and a case reported by Crocker.

The disease, which is of venereal origin, according to Kuhn, is usually confined to the pubes, penis, groin, anus or labia, although Sequeira describes a case of ulcerative granuloma of the pudenda, verified by Daniels, where the patient had a similar lesion at the angle of the mouth. Also in Pollitzer's case, the patient had a lesion, similar to that on the genitals, situated on the right side of the forehead.

While the lesion seems to attack the regions where sebaceous glands and hair follicles are most abundant, in case No. 1 of mine the lesion started on the glabrous skin of the penis, and Galloway describes a case where the lesion was confined to the penis for five years, while Kuhn states that it may cover the entire body. The disease spreads by continuity, the direction of the flow of the discharge from the lesion often determining the direction of the extension, but it is also autoinoculable.

The differential diagnosis from tuberculosis and malignant disease can be made comparatively easily, but chancroid and lues present some difficulties; but the duration of the lesion, its granular character, the offensive watery secretion, the absence of palpable glandular enlargement or lymph strings, and the failure of repeated attempts to find the Unna-Ducrey bacillus, exclude chancroid. The complete inefficacy of antiluetic treatment, the negative Was-

sermann reaction, the absence of spirochætae, and the healing of the lesion under surgical treatment, with sterile dressings, practically exclude lues.

As to what significance the bacillus described by Dr. Dickson as resembling b. malleus may have, is hard to state, but it is interesting to note that Pollitzer found a similar organism in his case, which he believes to be the etiological factor, and has suggested the name of bacillus malleoides for the same.

The only effectual treatment seems to be surgical, X-rays failed at the hands of MacLeod, although Sequeira's case healed under their influence.

Discussion.

Dr. E. D. Chipman: I recall having seen a case 15 years ago, as a hospital interne, which was possibly similar. It occurred in a negro, and involved the whole genital apparatus externally. As I remember, it consisted of nodules and sinuses, from which a foul smelling discharge exuded; it suggested to the minds of the attending surgeons the possibility of keloid. To the best of my recollection the case was treated with the ordinary dressings, but I do not remember its being treated surgically. There was no history of syphilis, and at that time there was nothing known of spirochætae and the Wassermann reaction.

Literature.

Conyers and Daniels, *British Guiana Med. Annual*, 1906.
Crocker, *Diseases of the Skin*.
Galloway, *British Journal of Dermatology*, 1897.
Kuhn, *Berliner Klinische Wochenschrift*, 1906, Vol. 1.
MacLeod, *British Journal of Dermatology*, 1907.
Pollitzer, *Journal of Cutaneous Diseases*, 1911.
Sequeira, *Proceedings of the Royal Soc. of Med.* No. 1, 1907-8.

THE OCCIPITO-POSTERIOR POSITION.

By L. I. BREITSTEIN, M. D., San Francisco.

The writer has been prompted to write this note on account of the high fetal mortality that is being lately encountered as well as the continued failure of the general practitioner in the recognition of these posterior positions. Why the fetal mortality should in this condition increase from 4 to 10 per cent. is not very clear to the writer, unless it is due to bad obstetrics. Accurate diagnosis of the position and careful investigation of the fetal and maternal condition should determine when interference is demanded, and timely interference can certainly save many babies. It is high time that the general practitioner doing obstetrics should be able to diagnose more readily the occipito-posterior variety. Though most textbooks might lead one to believe that this position is not frequent, such is not the case, for the occipito-posterior positions are present, in our experience, to the extent of 30 to 40 per cent. Does this mean that these varieties are on the increase? We hardly think so. It simply means that by careful ante partum examinations and examinations made at the onset of labor, these positions are diagnosed and not left to the time when the head is on the pelvic floor. Aseptic technic and the use of rubber gloves permit these examinations being made without fear of infection.

Correct diagnosis is essential to better management. The technic of abdominal and vaginal examination, as given in any of the modern textbooks of obstetrics, if followed but carefully, will give one the diagnosis. Clinically these cases are manifested by the fact that—

1. Labor is prolonged.
2. Membranes rupture early.
3. Cervix is slow to dilate.

These facts should lead one to be more than suspicious of the variety confronted, provided no

disproportion exist between size of head and size of pelvis. The exact condition being recognized, judicious treatment should prevent exhaustion of the mother. Maternal and fetal indications will tell one when it is necessary to interfere. Application of the forceps and delivery according to the Scanzoni manoeuvre have given us satisfactory results, and we have had no trouble in delivering women by this method after all other methods had failed.

RAILWAY SURGEONS

SOME CONCLUSIONS REGARDING THE PRESENT KNOWLEDGE OF VERMIFORM APPENDIX.*

By C. J. TEASS, M. D., San Francisco.

The subject was prompted not alone from the constant erroneous expressions one hears through the laity, but from the thoughtless and unjust remarks made by members in the profession.

As instance: A patient with a diagnosis of appendicitis coming from one of Boston's able diagnosticians and upon examination eliciting a point of maximum distress under right rectus near the median line. An incision was made through the sheath of the right rectus, retracting to one side its muscular fibres, going directly down upon a very tortuous and adherent appendix with its apex reaching into the left pelvis. So it was comparatively an easy procedure to dissect free the adhesions, thus freeing the cecum as well as the removal of the appendix. Should the classical grid-iron incision have been made in the region of McBurney's point it is quite evident that it would have been very awkward to the operator and infinitely worse for the patient. Still when this patient was examined a few months later by a doctor upon request, he at once criticized the location of the incision and informed the patient that he could have removed that appendix through an incision less than an inch long. Naturally such an egotistical and ignorant remark gave the patient more or less mental anxiety.

Again, a young lady comes with a history of suffering more or less pain in the abdomen for past four months, but never so severe as to confine her to bed. Upon examination a rather large mass was found in the abdomen slightly to the right of the median line. She was examined by numerous doctors who differed as to the diagnosis. Consequently the patient was kept under observation for repeated examinations. The conclusion was finally reached that she was suffering from an inflammatory mass primarily involving the appendix and secondarily the right adnexa.

The abdomen was opened in the median line in order to get the maximum amount of exposure to the left of the mass. Now upon careful examination the diagnosis was found to be essentially correct only that the intestinal adhesions were much more dense and numerous than had been anticipated from her symptoms. These adhesions would have in a very short time undoubtedly produced an acute obstruction of the bowel.

Several months later she severely strained the muscles of her back, requiring the services of another doctor, who upon examination discovered the median scar and questioned her as to the cause of the operation, when the innocent girl remarked for "appendicitis." The doctor's comments regarding the incision and what he thought about her trouble so distressed her that she came at once for explanations. A few more personal cases of similar import could be enumerated, besides many others that have come under observation from the hands of the best men in the country.

But the above cited cases will suffice to illustrate the point I am trying to bring out, namely, that the greater part of the discontent, mistrust and suspicions of patients over the work done by their surgeons is caused by members in the profession. I do not mean to infer that they will foully, maliciously and intentionally cause it, but that they grow careless with their remarks and too freely expressed opinions without getting accurate first-hand knowledge of the detail condition of the case or fail to keep themselves properly posted, and thus get the people wrongly educated as to the general broad precepts of surgical truths.

The all-important and essential fact, which seems never to be taken into consideration by the average mind, is that every patient suffering with a pathological condition of the vermiform appendix demands individual study and the judgment to act accordingly.

As Will Mayo so aptly puts it: "One does not operate upon a patient simply to perform a successful operation, but rather to relieve the patient of his or her symptoms." Any man who has had the least bit of operation experience with the appendix knows only too well that the simplest and most satisfactory thing in the world is to remove an acute appendix in the beginning of its initial attack, but on the other hand, a complicated pathological condition of the appendix at times demands the best of trained surgical judgment and acumen.

One of the most unique and instructive cases that the writer ever witnessed proved to be in the hands of Dr. Brewer of New York in Roosevelt Hospital. The patient (who by the way was one of the world's leading actresses) had given an indefinite prolonged history of repeated attacks of distress which was finally diagnosed as appendicitis. An incision was made, which appeared to the writer of unusual length, but when the "pathology" began to be demonstrated its wisdom was at once apparent. What looked to be a decidedly vicious appendix was carefully removed, but upon a hurried examination Dr. Brewer said this appendix was not responsible for all her symptoms; so upon further examination of the ascending colon he was rewarded by finding a fishbone that had lodged in the wall of the gut which was upon the point of perforation. After repairing the damaged gut he took the precaution to suture an extra fold of peritoneum over the damaged area. Gentlemen, this was ripened surgical judgment, through years of fruitful surgical work. Had this noted woman's abdomen been closed without the attention to the damaged gut caused by the fishbone, the generous

* Read before the Pacific Association of Railway Surgeons, San Francisco, 1912.

newspapers would have had glowing headlines something like this: "One of the world's most noted actresses dies from the effects of an operation for appendicitis."

In the female many slight attacks pass unrecognized, for, owing to the menstrual function, more or less abdominal pain is not held of so much account as in the male, where all abdominal pain is abnormal. Moreover, many attacks of appendicitis coincide in their onset with that of menstruation. In such cases chronic appendicitis may manifest itself in the form of merely stomach or bowel trouble with or without very slight local symptoms. So in some cases it is only by prolonged study of the case, especially repeated local examinations and taking the temperature after exercise, that it is possible to differentiate the true cause of the trouble. One may learn of disturbances suggesting previous attacks. Pregnancy, labor and the puerperium certainly predispose to recurrent attacks of appendicitis, and such attacks run a more rapid and destructive course than when occurring in other than pregnant patients, and therefore demand prompt action at the hands of the surgeon.

Attacks of appendicitis in infants invariably and quickly reach the formation of pus, so one should ever be on his guard to make his diagnosis early and act accordingly. The writer remembers one day of speaking to Moynihan of Leeds, England, regarding this particular phase of the subject, and his vast experience corroborated the truth of the assertion.

The youngest child that the writer had ever diagnosed an acute attack in was eighteen months old. At the time was treating an older child in the family. One evening following a daily call upon this child the mother called over the phone and said the "baby" was vomiting and appeared to have some fever; upon inquiry elicited the fact that the child had been eating some strawberries, so prescribed some calomel and expressed the belief that the child would soon be feeling better, but upon the next usual daily visit to the house the following morning noticed that the "baby" looked ill. An examination was at once made and, greatly to the writer's surprise, a well-defined mass was discovered in the right iliac region. A diagnosis of appendicitis was made, and after overcoming the amazement and fear of the parents, the child was hurried to the hospital and at once operated upon; pus had already found its way up behind the liver as far as the diaphragm. After several weeks of drainage the child made a complete recovery.

Again a little girl, five years of age, at repeated intervals during three days' time, complained to her mother of cramps in her bowels. The mother, thinking it was due to something the child had eaten, gave her repeated doses of oil until the fourth day she developed quite a fever, when the writer was called and made a diagnosis of appendicitis. But in this case, owing to the objections of the parents, the child was not operated for two days later, when upon opening the abdomen the entire cavity was found to be filled with an ichorous pus; the child succumbing that evening from the effects of an overwhelming toxemia.

Again, was called to see a little boy six years of age who had complained of more or less distress in his abdomen for the past week and showed a disinclination to play. Upon examination a well defined mass was detected in the right iliac region. The little patient was at once taken to the hospital, his abdomen opened and much pus drained out. He got up and around in the usual length of time, but later on developed a secondary abscess the cause of which when opened was found to be a small fecal concretion about the size of a pin head. This time he did not do so well as general septicemia set in which caused his death after many days of suffering. This case has forever been a warning to the writer to do his work more thoroughly and trust as little to nature as possible for I can not help but feel that had the first operation been more radical and thorough the child would be living. Better a large scar than a dead patient.

I am prepared to acknowledge that a large percentage of patients suffering with an acute or chronic appendix may survive the condition but what human being can differentiate in his prognosis those cases that will recover from those that go on to fatal complications through procrastination. The more cases one observes the more convinced he becomes that the greatest safety lies in the quickness with which the radical operation is undertaken. The writer never had an occasion to regret resorting to an early radical operation but he can distinctly recall two lives that were sacrificed by procrastination. This is particularly true as regards an early obstruction of the bowel, complicating an attack of appendicitis. It is criminal to wait for the terminal symptoms of such a condition before surgical interference.

There is no doubt but that the life of a patient has been sacrificed in just this class of cases in the name of conservatism. The early resort to enterostomy in bowel obstruction complicating an appendicitis has been greatly neglected.

In a year and a half of travel visiting various surgeons in this and the old country the writer saw several desperately ill patients whose lives were saved by a timely enterostomy and as many more whose lives were sacrificed for the want of such a procedure.

The choice of technic is a matter of personal judgment. The Moynihan method of enterostomy and drainage by a special glass tube introduced into the bowel, which is made to pass over the tube so the inches of tube negotiate feet of bowel, and thus by two or three introductions the bowel is thoroughly emptied, is a very valuable method and will suffice in some cases, as has been so ably stated by Dr. J. P. Lord. It has been observed, however, that a bowel distended from paralysis will rapidly refill with gas, and this gas distention is inimical to the security of the sutured enterostomy openings. In many cases more prolonged drainage is required. And this theoretical objection has suggested itself that drainage may readily result to the lumen of the gut, which would likely favor the absorption of the highly toxic and septic bowel contents.

Dr. Lord's technic as described by him is hard to improve upon and is as follows: "The first presenting distended loop of bowel is grasped and deflated either by finger pressure or by suitable rubber clamps. If the bowel is too distended or too altered to admit of this, then it is desirable to puncture the bowel with a needle or very fine trochar to allow the gas to escape in sufficient quantity to permit the segment being operated upon without danger of leakage. A very distended bowel will leak through stitch holes. Three purse-strings of No. 0 caught $\frac{1}{8}$ of an inch apart are introduced by means of cambric needles and the first part of the knot is then made. A stab is made in the gut by a sharp pointed knife, care being taken not to cut the catgut. A large sized rubber catheter with extra fenestra is introduced two inches into the opening, which should grasp it tightly. The catgut sutures are then tied, the gut is encouraged to empty if the patient's condition should permit and the intestine is returned. The peritoneum is sutured to the gut and is closed about the catheter. The abdominal wall is closed in layers with catgut and retention sutures of wormgut. The ends of one wormgut are used to secure the catheter against withdrawal and the wound dressed as in any similar wound. The catheter is made to drain into a large bottle, which should be frequently emptied, rather than depend upon a long drainage tube into a vessel under the bed. Such an arrangement might result in the catheter's being accidentally withdrawn. Any clogging of the catheter may be relieved by introducing salt solution. Indeed, the frequent introduction of salt solution is desirable and should be frequently repeated. Introduced hot it is a most efficient means of combating collapse. The catheter may be removed in from three to six days, and is not as a rule followed by leakage. It may be reintroduced from time to time as necessary; of course, sufficiently often to prevent closure by healing until normal defecation has taken place. The writer has frequently experienced the necessity for reintroducing the catheter to relieve gas and to drain the bowel. Thus its value has been repeatedly demonstrated in individual cases. There will be less likelihood of subsequent leakage probably if the tube is removed at intervals after about three days."

Would add in closing to further emphasize the main thought that prompted this rambling paper, that should the median abdominal incision be resorted to oftener, especially in women, where everything in the pelvis and abdomen could be thoroughly palpated and inspected one would hear proportionately fewer patients laying claim to having had their second or third, let alone sixth or seventh operation, as no unsuspected pathology would be overlooked at the first operation.

For though the predominant symptoms may have pointed to, and we actually find a pathological appendix at operation, that does not necessarily preclude the possibility that there may not be active pathology in other organs of the abdominal cavity which if undiscovered will cause a continuance of symptoms demanding a second operation which un-

fortunately is generally placed in the hands of another surgeon.

Discussion.

Dr. J. C. King, Banning: There is no medical treatment for appendicitis. These papers were particularly interesting to us. One point is the length and character of the incision. Not long ago I operated for a case of appendicitis and finished by taking out a large gall stone. It does not take any longer for a three-inch incision to heal than for a one-inch, and as one gentleman has so cogently stated, we can only do it when we can see.

Regarding the cessation of pain: Not a great while ago I operated nine hours after the first appearance of symptoms. Gangrenous appendix, perforation of cecum. Absolute cessation of pain one hour before operation. Temperature and pulse normal, and it was with great difficulty that the patient could be persuaded to go on the table.

Dr. Lawhead: I do not think the leukocyte count is so important in itself, because you can have high leukocytosis without suppuration; but I do think that if you get the percentage of polynuclear leukocytes it will help you very much. If these are over 75% you are in danger; if over 80% there is almost certainly pus. In the case of suppurating operations Graham, I think, first demonstrated the use of warm olive oil by rectum; it builds up the blood condition much more rapidly than salt solution, and has a double action on ether which may be free in the bowel. I remember a case of a woman of 68, in whom a provisional diagnosis of appendicitis had been made. The temperature had not been above 99° or the pulse above 76. Leukocytes 12,000, percentage of phagocytes 80. Taken to sanitarium. Found gangrenous appendix.

Dr. Ramey, El Paso: It has not been my custom to make any particular incision in suppurative appendicitis. When you have an abscess of the appendix, it may be in the pelvis, or toward the center of the abdomen, or high up towards the liver. I do not believe that you can make any regular incision like McBurney's. It is always best to try to keep if possible outside of the peritoneal cavity and dissect by blunt dissection as much as possible. The cutting of muscles I do not regard as of any value, and do not think we should consider the possibility of hernia when our patient's life is at stake. The emphasis on the pulse rate I am thoroughly in accord with. I do not believe high temperature means anything in appendicitis if the pulse remains low, but when you get a rapid pulse, especially with a low temperature, you may look out for a gangrenous appendix or a perforation. Regarding drainage, I do not think the doctor mentioned it. If an abscess has ruptured it is customary to drain, especially the pelvis, putting your patient in Fowler's position.

Dr. Teass, closing discussion: I am sorry that Dr. Morton had to leave the room immediately following his discussion of my paper, as there are a few things I should like to have said to him. He misinterpreted the meaning of that part of the paper which refers to the criticism of the medical profession. I court criticism always, when it is actuated by an honesty of purpose and an intelligent desire toward correction of supposed false statements or actions, but what I did try to criticize was the great injustice done the profession by some members who are constantly making false insinuations, in the presence of their patients, of other men's work, solely with an intent for supposed selfish gain.

Dr. Morton also seems to lay great stress upon the blood count. I am more in accord with Dr. Gardner, for I have yet to meet my first case in which I could believe it of great practical value. To my mind there is but one thing to do in any of these cases, and that is to operate at the earliest possible moment. Even with a most accurate blood

count, you cannot always be sure that pus is or is not present, and what of it? As was stated in the paper, simply deal with each case as you find it, upon its own merits; do not waste too much valuable time thinking over blood counts, but act! And, like Dr. Ochsner, of Chicago (who keeps blood counts with the hope that they may add something of more practical value in the future when statistics are considered in the millions), study blood counts at your leisure when the patient is safe.

In regard to Dr. McKee's case of the pregnant woman. It was indeed too sad that he was not permitted to operate when he first proposed to, for no doubt the prolonged toxemia* was the real cause of the miscarriage rather than the slight shock from the operation. And such unfortunate criticism as was later so ignorantly or maliciously indulged in by one of his competitors is just what was aimed at in the paper.

Since this paper was written, another case in point has come under observation. A robust trained nurse had given a history of more or less constant distress in her right iliac region. An examination revealed a rather tender thickening which the writer concluded was involving the right tube and ovary as well as primarily the appendix. Another surgeon was called in the case, and though he did not say so, I am satisfied that he thought the causation of her trouble was a specific infection. However, we agreed to open her abdomen in the median line, and I am very happy to state that we found an exceptionally long appendix bound down by adhesions to the right ovary and tube, pulling the fundus of the uterus far down into the pouch of Douglas, so he was convinced that her trouble was primarily with the appendix. No doubt this girl will be self accused in the eyes of every doctor who may happen to see her median scar.

TREATMENT OF FRACTURES OF PATELLA.*

By REXWALD BROWN, M. D., Santa Barbara.

Dennis in 1895, in his *System of Surgery*, said: "While the number of cases of fractured patella yet operated upon is too limited to admit of deductions by means of which a final settlement of this question can be made in the minds of surgeons, the future practice of the surgery of this and other countries will soon enable us to condemn open operations as an unsafe and unjustifiable procedure, or else it will be conceded as one of the grandest triumphs of our art."

In the almost a decade since these words were written the open operative method has achieved the position of first consideration in the matter of management of fractures of the patella, and it is a grand triumph of the surgical art. Modern surgery has practically unassailable reasons which allow her to condemn as prejudicial to the best interests of the patient the various mechanical devices which have been used for the hundreds of years preceding the dawn of this aseptic era. Heinicke, in his most exhaustive and convincing monograph on patella fractures states: "We believe we are fully justified in affirming that the dangers

of the open operation, if it be performed with due precaution by careful and skilful hands, are practically nil." He follows with powerfully convincing analyses of the advantages of the open method, forcibly contrasting with the shortcomings of the old closed methods.

Simple fracture of the patella in otherwise healthy individuals being therefore the indication for open operative measures to its cure, the technique of the operation, the time for its institution, and the post-operative procedures, are the chief matters for attention.

It may be said without fear of dispute that the use of non-absorbable material, as wire, to unite the fragments, is or should be obsolete practice. Let us mention objections: (1) It adds insult to injury—does further damage to the fragments; (2) is non-suitable in comminution; (3) wire often breaks after placement; (4) wire may wander into joint; (5) requires special instruments; (6) there are much better methods in consonance with the pathology of the condition.

E. Wyllys Andrews' article, "Laparotomies on the Knee Joint," most masterfully views the real place and function of the patella in the integrity of the knee joint. Anatomically it is but a sesamoid bone imbedded in the anterior wall of the joint capsule between layers of tendinous fibres of the quadriceps tendon. The bone adds no strength to the tendon in a longitudinal direction, but rather tends to weaken it at this area, as it seldom ruptures above or below the patella. "The real function of the patella is to add leverage to the knee extensors in extreme flexion, and by its gliding motion and pulley action, to enable these muscles to transmit their pull around a curve of almost ninety degrees."

The strength of the capsule in front was shown by Blake to be largely that of the lateral ligaments into which the patella is also buried. This is clearly demonstrated in the occasional fractures of the patella with no tearing of the lateral ligaments; in these instances there is no separation of the patella fragments.

In the days of "wiring" the patella, recurrences of the fracture were not infrequent. And why? Because the patella was considered the element of strength in the patella tendon, and osseous union between the fragments was therefore the desideratum. The fibrous structures were considered of secondary importance, and hence were insufficiently cared for; consequently the unsupported bone after healing was unable to withstand the strain of leg movements.

This knowledge of fundamentals determines treatment—"the vital element in the problem is to secure perfect restoration of the torn anterior wall as a whole, in effecting which the patella will be restored incidentally to its function as a pulley, a lever and a weight bearing support in kneeling" (Andrews).

* Read before the Pacific Association of Railway Surgeons, August 30, 1912, San Francisco.

Granting aseptic conditions as ideal, the best incision is probably a transverse one, somewhat below the fracture line. Clots in the joint should be taken out with the utmost care to avoid any friction on the synovial sac. Murphy has conclusively demonstrated that micro-organisms are not necessarily dangerous in synovial membranes, provided the endothelial layer is intact; but if in the presence of germs the endothelium be rubbed off, the resulting destruction to limb is often colossal. Andrews recommends careful separate suture with fine catgut of the synovial membrane.

The long fringes of the anterior fibrous capsule are lifted from between the broken bone surfaces. The tears in the lateral ligaments are closed by about three chromic gut or kangaroo tendon sutures, the two sutures next to the bone being very close to it. These drawn taut bring the two fragments of the patella into perfect apposition. The anterior fringes are next imbricated, giving a very broad surface for union. Skin is then closed.

The matter of the time to operate following the occurrence of the fracture is of special importance. Opinion has become well entrenched that operative procedures undertaken within the first six to ten days invite the disaster of infection of the joint. During this time the surgeon would be working in tissues more or less devitalized and consequently less resistant to germ invasion. If undisturbed these few days, the synovial membrane reacts to the trauma and irritation of the blood clot, and the sub-endothelial lymph spaces become coffer-dammed. Murphy advises that this irritation and reaction be intensified by the injection of 10 c.c. of formalin and glycerin into the joint as soon as possible after the injury. This fluid will increase both the local and the general polymorphonuclear reaction. It also assists in the coffer-damming of the lymph spaces. The resistance of the joint to infection is thus built up. Operation should then be performed seven to ten days after the break.

The after-treatment plays an all important part in the effort to secure a useful limb at the earliest possible time. Passive movements begun on the day following the operation and continued thereafter daily will contribute greatly to this end. There is no reason to fear the sutures giving way under these light movements. The muscular spasms which occur during convalescence which are not much thought of, are decidedly more a strain on the sutures. And by the end of two weeks surely the carefully repaired quadriceps tendon will have developed dense new connective tissue, allowing greatly increased passive movements, flexion to a right angle or more.

There is no need to place the limb in a cast, except for perhaps twenty-four hours or so, until restlessness is past. After the wound is healed, no dressings are needed and the limb should lie unsupported on the bed. Daily massage is given which prevents atrophy and stiffness. Patients can be on crutches in from three to four weeks, and may bear weight upon the foot in from four to six weeks. Following this regime a complete cure should be effected in six to eight weeks—there are

no adhesions and partial ankyloses to contend with for months afterward.

Case report: Miss J. S. Age 38. While rolling a ball on bowling alleys March 27, 1912, felt a sudden snap, knee gave way, and patient was unable to walk. Pathology at operation, simple transverse fracture of patella at junction of upper and middle thirds, rupture of patella and lateral patella ligaments, inferior anterior fringes covered fractured surface of distal fragment, separation of fragments one and one-half inches, operation as outlined above, early passive movements, patient bearing weight on foot in six weeks; practically complete range of motion in eight weeks.

Discussion.

Dr. C. W. Evans, Modesto: There is one point I want to make about immediate operations. Everyone who has gone into recent fractures has found that it is much easier to get broken bone back accurately if it is done immediately than if left for a week or two, and I think it is better to operate immediately for that reason. I know that Mr. Lane of London lays great stress upon getting the bone back in very accurate position.

Dr. Hildreth: I have only operated on one or two fractures of the patella, but there is one point I want to take notice of, and that is the selection of ligature. Chromic cat-gut has fallen into disrepute in my part of the country. You may have kept all the good ones here in San Francisco and sent the bad ones to us down in the Valley; but anyway, we have discarded it.

Dr. O. D. Hamlin: In my mind the all-important point is the question of infection. If you can keep your wound clean and get primary union, I do not care what you do your work with and I do not care when you do it, whether immediately or a week afterward. There seems to be much discussion as to when the operation should be done, and I believe that both sides are right. When there is a great deal of devitalized tissue around the fracture, I am in favor of waiting. In a simple case, where there is not much trauma, it can be done immediately. But the first and all-important point is to try and get your work done clean. You will then get a fairly good functional result. I am in favor of slight passive motion beginning early. This is a very important point. This should not be forced bending of knee, but very slight motion, increasing gradually, and a good rule is the amount of pain, which will be a guide as to the amount of passive motion that can be used.

Dr. Brown, closing discussion: In answer to the question of how far the fragments were separated, I may state that I believe there was no separation whatever. I tried to bring out the point in my paper that the patella is not the important feature of the break—it is the laceration of the lateral and anterior ligaments. If the lateral ligaments are carefully sutured close to the bone on either side, the two fragments will come into perfect apposition, and if the anterior ligaments overlap, there is scarcely any question of separation of fragments. Take care of the capsule and the bone will take care of itself—if no germ enters the operative field we will get primary union. The treatment I outlined was one that has been used in a very large number of cases by many operators. It builds up resistance within the joint. Murphy's contention that the lymph spaces should be coffer-dammed before operation is certainly wise teaching. At the same time we are willing to grant that if no germs get into the joint, it is well to operate within a few hours after the break, but we would not approve of that plan in the average case. I think Dr. Morton's reference to the position of the leg is exceedingly important, to have it slightly flexed. That undoubtedly has a tendency to place the callous on the outside instead of on the inside of the joint.

SOCIETY REPORTS

CALIFORNIA ACADEMY OF MEDICINE.

The regular meeting of the California Academy of Medicine was held in the rooms of the San Francisco County Medical Society on February 24th. The following scientific program was given:

1. Demonstration of Clinical Cases. Dr. S. J. Hunkin.

A. General Osteoarthritis of Spine with Angina Pectoris.

B. Spinal Kyphosis (Tuberculosis, Syphilis?).

C. Sacro-Iliac Dislocation.

2. The Relation of Gastric Ulcer to Vascular Disease. Dr. Wm. Ophüls.

Discussed by Drs. Stanley Stillman, Saxton Pope, G. Y. Rusk, Emmet Rixford and Wm. Ophüls.

3. A Comparison Between Zoster of the Face and that of the Lower Extremity as shown in Two Cases Recently Observed. Dr. George D. Culver.

Discussed by Drs. Stanley Stillman, S. J. Hunkin, E. S. Kilgore, Rene Bine, and Douglas Montgomery.

COOPER CLINICAL SOCIETY.

At the regular meeting of the Cooper Clinical Society, held at Lane Hospital on the evening of March 3d, the following program was given:

1. Fibroids in Pregnancy. Dr. R. Knight Smith. Discussed by Drs. Wm. Ophüls, F. P. Topping, S. O. Beasley, Stanley Stillman and R. K. Smith.

2. Errors in Clinical Diagnosis as Revealed by Autopsy. Dr. E. D. Downing. Discussed by Drs. H. P. Hill, W. R. P. Clark, R. L. Wilbur, Wm. Ophüls and Stanley Stillman.

3. Intratracheal Insufflation Anesthesia (with demonstration of apparatus). Dr. Saxton T. Pope. Discussed by Drs. Stanley Stillman, Emmet Rixford, L. Eloesser and S. T. Pope.

HUMBOLDT COUNTY.

The February meeting of the Humboldt County Medical Society which was held in Arcata last Thursday evening in the Pythian Castle, was a very interesting session. Matters of interest to the medical profession were discussed and Dr. F. R. Horel read a paper on "Intestinal Stasis." Those who were in attendance at the meeting on Thursday evening were Drs. E. L. Cottrell, O. W. Sinclair, Carl Wallace, C. M. Mercer, B. M. Marshall, W. J. Quinn, Curtis Falk, L. Wing, J. N. Chain, and Horel, Mills and McKinnon of Arcata. The next meeting will be held in Eureka.—Eureka Standard.

THE COUNTY MEDICAL SOCIETY AT MONTEREY.

The County Medical Society met in the Chamber of Commerce rooms at Monterey, Saturday evening, March 1st, and the members listened to an address by Dr. S. H. Buteau of Oakland, on "Scientific Problems." The following members of the society were present: Dr. W. B. Grimes, Dr. H. N. Yotef, Dr. D. L. Deal and Dr. H. E. Douglass of Pacific Grove; Dr. T. C. Edwards, Dr. Crabtree and Dr. S. B. Gordon of Salinas; Dr. W. A. Lillie, Dr. Himmelsbach, Dr. E. K. Abbott and Dr. M. McCauley of this city.—Salinas Democrat.

REDLANDS PHYSICIANS' CLUB.

About forty physicians, members of the San Bernardino and Riverside County Medical societies and their guests, enjoyed an excellent banquet at the University Club February 11th, Dr. B. F. Church of this city acting the part of genial host.

After the dinner, Dr. J. L. Avey spoke briefly of the bills which had been presented to the present legislature dealing with public health questions and the status of medical licensure. Dr. Geo. Tucker, of Riverside, followed with a short talk on the

work of the Public Welfare League, an organization with headquarters in Los Angeles. This league is composed of prominent laymen and physicians and is attempting to raise the standard of public health work, protect the public against fraudulent drug advertising and medical fakers, and maintain a higher level for all work affecting public health.

The gathering then adjourned to the assembly room, where they listened to a paper by Dr. Ross Moore, the neurologist, of Los Angeles, who spoke on "Diagnostics of Nervous and Mental Diseases." Dr. Moore made a strong plea for more careful and painstaking examinations in nervous diseases, emphasizing the fact that patients ill with neurasthenia, for instance, were sick and required careful diagnosis and whole-hearted understanding just as typhoid fever patients, or those ill with other acute diseases. The paper was well received and excited some discussion.—Redlands Facts.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of February the following meetings were held:

Section on Medicine, February 4th, 1913.

1. Demonstration of Case of Banti's Disease, Dr. E. Ghidella. Discussed by Drs. Otto Zaicheck, René Bine, H. B. A. Kugeler.

2. The Demonstration of Spirochaete Pallida in Syphilitic Aortitis, Dr. J. V. Cooke.

3. Report of a Case of Amyotrophic Lateral Sclerosis, with Unusual Features, Dr. René Bine.

4. The Anatomical Findings in the above Case, Dr. G. Y. Rusk. Discussed by Drs. H. C. McClenahan, J. V. Cooke and W. F. Schaller.

General Meeting, February 11th, 1913.

1. Moving Picture Demonstration: Heart, Blood, Spirilla, Peristalsis, Protozoa, etc, Dr. Dudley Tait.

2. New Researches in Gonococcus Infections (illustrated), Dr. Carl C. Warden (Los Angeles).

Section on Surgery, February 19th, 1913.

1. Relapses after Operations for Hydrocele, Dr. Dudley Tait. Discussed by Drs. R. L. Rigdon, M. Krotoszyner and J. H. Barbat.

2. One Form of Painful Foot, Dr. A. L. Fisher. Discussed by Drs. G. C. McChesney, S. J. Hunkin and M. Krotoszyner.

3. Intestinal Obstruction, Dr. A. B. McConnell.

Section on Eye, Ear, Nose and Throat, February 25th, 1913.

1. Report of Case of Removal of Foreign Body from Esophagus, Dr. Victor Lucchetti. Discussed by Drs. H. B. Graham, Cullen Welty, M. W. Fredrick and Henry Horn.

2. Lantern Slides from Photographs of Pathological Specimens in the Medical Museum of the University of Vienna, Dr. Cullen Welty.

YOLO COUNTY.

The Yolo County Medical Society met at the residence of Dr. W. J. Blevins on Tuesday evening, March 4. The paper by Dr. Blevins was on "Signs of Illness in Children," and was followed by an interesting discussion.

As the names of a few physicians and of the one hospital here have been constantly mentioned in the news items of the local newspapers, a motion was adopted by the society to appoint a committee of three to wait upon the editors of the city papers and request them in the future to omit the names of physicians connected with medical or surgical work, and also the one institution where such work is attended.

The committee appointed consisted of Drs. C. H. Fairchild, F. L. Newton and C. Rasor.

The election of Dr. Amory Peck was reconsidered, and his application referred to the board of censors, as he has made no response to the communications of the secretary.

F. L. NEWTON, Secretary.

INFLUENZAL MENINGITIS SERUM.

The Rockefeller Institute for Medical Research,
66th Street and Avenue A,
New York

February 24, 1913.

Dear Dr. Brown:

We have been engaged for some time in the study of the treatment of influenzal meningitis with a specific anti-influenzal serum. The effects of the serum treatment in experimental influenzal meningitis are very satisfactory and we are now prepared to supply the serum made in the horse, in moderate quantities, to a selected number of physicians for use in human cases. The method of application is similar to that which is employed in the treatment of epidemic meningitis with the antimeningitis serum—that is, the antiinfluenzal serum is injected subdurally by lumbar puncture.

Would you kindly inform me whether you would like to have some of this serum on hand for use in suitable cases that may arise in your locality? The serum should, of course, be used only when a definite bacteriological diagnosis of influenzal meningitis has been made. It will be necessary, however, to apply it as early as possible in the course of the disease in order that good effects may be hoped for.

In the event that you accept this offer I should like you to make it known to physicians that you possess the serum and are willing and able to apply it in suitable cases. You may recall that this is the method we pursued originally with the antimeningitis serum. I wish to stipulate that copies of the histories of the cases in which the serum has been used should be returned to me as promptly as possible. You would, of course, be free to make any publication of the cases that you desired.

Yours very truly,
(Signed) SIMON FLEXNER.

Dr. Philip King Brown, 350 Post Street, San Francisco, Cal.

February 28, 1913.

Dear Dr. Flexner:

I am sure that we shall be more than glad to have the anti-influenzal serum in San Francisco. I will be glad to be responsible for the distribution and use of the serum according to your direction, and the supplying to you of full data in each case in which it is used.

Faithfully yours,
(Signed) PHILIP KING BROWN.

Dr. Simon Flexner, The Rockefeller Institute, 66th St. and Ave. A., New York.

BOOK REVIEWS

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, Number 1 (February, 1913). Octavo of 179 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Published bi-monthly. Price per year: Paper, \$8.00; Cloth, \$12.00.

Contents: Open Treatment of Fractures; Osteitis of Femur; Luxation of Semilunar Cartilage; Floating Cartilage; Fecal Fistula Following Appendectomy; Medicolegal Relations of Physician and Patient (by Dr. W. C. Woodward); Tuberculosis of Knee; Arthrodesis (Treatment of Tuberculous Joints); Paget's Disease; Amputation of Breast; Acute Appendicitis; Abscess of Neck; Broad Ligament Abscess; Pyosalpinx; Cerebral Adhesions (Decompression); Fracture and Luxation of the Neck of the Humerus; Laminectomy; Congenital Pyloric Stenosis; Laminectomy Two Years After Injury; Hour-Glass Stomach.

Medical Men and the Law. A Modern Treatise on the Legal Rights, Duties and Liabilities of Physicians and Surgeons. By Hugh Emmett Culbertson, Esq., member of the Ohio and New York Bars; Contributing Editor to many Legal Publications. Octavo, 325 pages. Cloth, \$3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

While this volume presents an admirable abstract of the various statutes regulating the relations of the practicing physician and his patients, and though it is very enjoyable reading, there seems to be no field of practical application for the mass of information it contains. The reason for this seems to be, that instead of enunciating a definite code to which one can refer, the author has derived his material from the varying and ever complicating laws of all the states of the Union. This removes the book from the list of dependable references wherein one can seek a definite answer, because what may be the law in Georgia may not be in conformity with the statutes of Wisconsin, etc. However, for a good list of concise general definitions, for a rather complete abstract of practically all the points on which the medical man comes into contact with law, and for a well-digested broad outlook over the field of medico-legal relationship, this work is to be regarded as of some value.

G. H. T.

"Theorie und Praxis der Innere Medizin," by Dr. Erich Kindborg of Bonn, published by S. Karger, Berlin, 1911.

There have been but two volumes of this work published. Volume I covers Circulation and Respiration; Volume II (1912) takes up Digestion and Metabolism. Without attempting to fulfil the task of estimating the comparative worth of the information contained in these volumes, the reviewer would rather attempt to convey some idea of the pleasure he has derived from the perusal of these delightful pages. Firstly, the scheme of presentation is like that of no other text-book that the present writer has seen. Each subject is introduced with a brief but comprehensive résumé of the embryology, anatomy and physiology of the organ or system under consideration. And these short discussions are complete with regard to all the important points in each branch; and what is more to the point, up-to-date in every particular. As a further means of refreshing the student's memory, the chemistry of the physiological processes is indicated in a clear and terse manner. Next in order comes the discussion of the microscopic anatomy and then the methods of examination and clinical diagnosis. At this point the diseases are discussed in the usual order, but even here the guiding mind of this really great teacher does not take anything for granted and the pathology of the tissues and organs is fully yet brightly introduced into the text. Even this does not complete the sum of the many thoughtful devices introduced to maintain the wonderfully complete co-ordination which is the keynote of Dr. Kindborg's contribution to the field of text-book compilation. Where drug treatment is mentioned, we are told of the chemistry of the active principles of the drugs employed. An additional illustration of the broadness with which the author has treated his theme lies in his enthusiastic advocacy of the appropriate surgical measures in all conditions where they are of advantage. And these surgical procedures are in turn not permitted to pass till they are described in a thoroughly comprehensive manner. It is to be hoped that the proximity of the reviewer will not give the impression that the books are at all verbose. On the contrary, this text-book is quite a model of concise yet complete exposition and serves in a way quite new to us to place in the reader's hand a text-book thorough, painstaking, complete and at the same time broadminded. There is only one point in the text

that the reviewer would want to call further attention to; that is the discussion of Metabolism. This author has come out very clearly in placing the correlated subjects of Thyroid, Adrenal and Hypophysis in direct sequence with the metabolic and trophic diseases of bones, joints and muscles. The author has clothed this very interesting work in good, clear, simple, scientific German that greatly facilitates its reading for those of us who may not read that language quite so fluently as would the German-born student. We shall await with much interest the arrival of the succeeding volumes of this most promising system. G. H. T.

NEWS NOTES FROM NEWSPAPERS.

Bakersfield doctors stirred up the district attorney to proceed against a couple of "Chinese doctors" and they were recently convicted and fined \$200 apiece. Good work.

The Stockton State Hospital was the unhappy recipient of an unwelcome present in the shape of four cases of smallpox in March.

A pardon for Dr. W. P. Burke, who was convicted of trying to dynamite Lu Etta Smith and is in San Quentin, has been signed by more than 15,000 persons, it is said. There seems to be a whole lot of misdirected sympathy going around.

Birth certificates should be sent in within five days. A good many physicians are forgetting this and not complying with the law; that is a mistake; the law is a good law and should be strictly lived up to. Reform!

At Grass Valley a dog, later found to have rabies, bit a number of animals, some of them quite valuable. But it is foolish to muzzle dogs and kill the strays; very foolish; let us have rabies.

Dr. Franklin L. Martin, of Chicago, has been out here on an expedition to organize the "American Royal Institute, or College, of Surgeons," the latest national Murphy advertising adventure.

Fresno, it is said in the "Republican," has had 16 cases of rabies in human beings since the first of this year. Nice doggy! It is cruel and inhuman to muzzle you!

Dr. J. L. Hennemuth, of Modesto, has been appointed County Health Officer to succeed Dr. Lappe.

Dr. Frank T. Duncan, San Francisco, was indicted and arrested in March, being accused of performing an abortion on a Mrs. Dunning.

Dr. J. B. Murphy, of Chicago, principal promoter of the proposed "American Royal College of Surgeons," has been visiting in the southern part of the state.

Berkeley is still suffering from antivaccinationitis; a petition to the city fathers has been made, asking that the health board be changed; they are too fond of vaccination.

A burn from a hot water bottle was the cause of a suit against the Pomona Valley Hospital Association for \$5,000. The hospital won but a new trial has been allowed.

Bakersfield has had three cases of epidemic spinal meningitis in the early part of March. They occurred in the oil district nearby.

Dr. George E. Tucker, of Riverside, Chairman of the State Society Committee on Public Policy and Legislation, is staying in Sacramento during the session of the legislature. On March 14th, Dr. Tucker delivered a talk on public health matters to the citizens of Ukiah.

"Los Angeles the Chemically Pure," is the title of a most brilliant and entertaining article in the March number of the "Smart Set." It is a delicious morsel!

The Travel Study Tour will leave New York July 3rd, visit a number of places in European countries and wind up immediately following the International Congress in London, August 5th to 13th. Full information can be had from Dr. Richard Kovacs, 236 East 69th Street, New York City.

Alameda County has decided to have a million dollar hospital to be located at San Lorenzo. It is said that 65 architects have undertaken to compete for the plans.

"Dr." O. C. Joslen is to have a third trial for the betrayal of Ethel Williams; the jury disagreed at the second trial.

Dr. H. S. Tanner, the starving expert, was just finishing a "lecture" on electricity, air, etc. (presumably articles of diet for Tanner), when his associate in the business of promoting "Normal Life," "Dr." J. A. Harriman, was arrested for practicing medicine illegally.

Anti-typhoid treatment is to be administered to the students of the University of California, as they may request it. The announcement was made that the treatments would be begun March 24th, and a very large number of students immediately filed the request. Probably, in time, anti-typhoid treatment will be as much a requirement as vaccination.

Colusa was given the opportunity to attend a lecture by Dr. W. A. Sawyer, on "Preventable Diseases," February 12th.

San Francisco is trying to start a war on the smoke nuisance. It not only is a public nuisance, but it is a waste of good fuel, if the business man would only appreciate the fact.

Long Beach physicians have fixed upon a green St. Andrews cross as their distinctive mark, to be placed on the front of their automobiles for identification purposes.

The California Eclectic Medical College, Los Angeles, dined a dozen of the legislators during the legislative vacation and devoted their energies to denouncing the American Medical Association, the Association of American Medical Colleges and everybody who wanted to have medical men properly educated. It must have been an encouraging banquet—for the twentieth century!

The Sacramento County Society, by resolution, requested the City Commission to raise the salary of the city physician from \$166 a month to \$300 a month.

The Los Angeles County health officer, Dr. E. O. Sawyer, is to investigate the islands off the southern California coast with the object of finding one that would make a suitable quarantine station for lepers.

In spite of Friedmann's best efforts, cures for tuberculosis continue to be "discovered." Since he landed in New York with his own original and only "cure," the newspapers have announced at least three others.

Typhoid vaccination (abominable use of the word "vaccination"!) having been found to be wonderfully successful in the Army and Navy, its use is to be extended to the militia before they go out for the annual field duty.

The Cancer Research Laboratory of Columbia University, for which funds were provided by George Crocker, will be built and in operation before the end of the year.

Fresno is to have another hospital, this one to be built by Dr. T. N. Sample; the plans are almost complete.

It is said that a new "medical" (?) journal is to be started in Los Angeles, its object being to fight the licensed schools. It could not be worse than those already existing there, so let it happen.

Dr. Enloe is to build a hospital on Flume street, Chico.

Lodi has just created a board of health and, in another ordinance, fixed penalties for violation of its rules.

Dr. Hugh Beattie has been reappointed health officer of Sacramento county.

Oakland (NOT Santa Cruz) is the place of the Annual Meeting of the State Society, April 15, 16 and 17, 1913.

DR. HUGH CROSS.

Dr. Hugh Cross, one of the best-known physicians in Siskiyou county, died at his home on Florence avenue last Friday evening, February 21, 1913, the primary cause of his death being heart trouble. He had been located in Sisson for some time and recently returned to Dunsmuir to re-establish his practice here. The deceased was a native of Dundas, Canada, fifty-four years of age, and is survived by a widow, Vina R. Cross, and a brother, W. T. Cross, a resident of San Diego, California. The funeral was held on Sunday under the auspices of Dunsmuir Lodge, No. 297, F. and A. M., and was attended in a body by the Masons, Elks and Eastern Star. Many beautiful floral pieces showed the high esteem in which the deceased was held.—Dunsmuir Plain Dealer.

JOHN M. LACY, M. D.

Dr. John M. Lacy, of Santa Ana, California, died at his home in that city February 2nd, after a long and painful illness; aged 75 years.

Dr. Lacy was born in Alabama where he grew to manhood, afterwards removing to Arkansas. He graduated from the Medical Department of the University of Nashville, Tenn., with the class of 1861, and almost immediately thereafter entered the Confederate Army as Assistant Surgeon of the 37th Arkansas Infantry. He served in that capacity through the Civil War, after the close of which he practiced his profession in Arkansas until 1879 when he came to California and located in Santa Ana. He was a hard worker and an earnest and able physician. Until broken health and failing sight compelled him to give up all work he continued in active membership in the Orange County Medical Association, the Medical Society of the State of California, and the American Medical Association. The first of these he helped organize, and served as its second president. His character as a man, and his attainments as a physician were of a high order. His wife, whom he married in early youth, and their family of several children, survive him.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-Official Remedies, 1912, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

Sodium Glycerophosphate (sodii glycerophosphas) is hydrated sodium glycerophosphate, $\text{Na}_2(\text{C}_3\text{H}_5(\text{OH})_2\text{PO}_4) \cdot 5 \frac{1}{2} \text{H}_2\text{O}$, containing not less than 99 per cent. of hydrated sodium glycerophosphate. It is crystalline, quite soluble in water, but insoluble in alcohol. Its properties and dosage are similar to those of calcium glycerophosphate (See N.N.R., 1913, p. 118).

Sodium Glycerophosphate, Monsanto, is a non-proprietary article and complies with the tests laid down for sodium glycerophosphate. Monsanto Chemical Works, St. Louis, Mo. (Jour. A. M. A., Feb. 8, 1913, p. 442).

Vacules' Digital contain digital 30 Cc. in sealed ampules. The air in the container is removed before sealing, whereby it is claimed, deterioration of digital is retarded (Jour. A. M. A., Feb. 8, 1913, p. 442).

Hediosit is the lactone or inner anhydride, $\text{C}_6\text{H}_7\text{N}_2$, of alpha-glucosheptonic acid, $\text{CH}_2\text{OH}(\text{CHOH})_5\text{COOH}$. It is an odorless powder having a sweet taste and is readily soluble in water. When given to diabetic patients hediosit is said not to increase the amount of glucose in the urine. It is claimed to have a food value equal to the same amount of glucose. It is said to be useful as a sweetener of the food for diabetic

patients. Farbwerke Hoechst Company, New York (Jour. A. M. A., Feb. 15, 1913, p. 516).

Isatophan is methoxy-atophan, 8-methoxy-2-phenyl-quinolin-4-carboxylic acid, $\text{CH}_3\text{O.C}_7\text{H}_4\text{N.C}_6\text{H}_5$, COOH . 8:2:4. It is a powder insoluble in water, tasteless, and has a slight odor. Its actions, uses and dosage are the same as for atophan. It is also sold in the form of Isatophan tablets, each containing 0.5 Gm. isatophan. Schering and Glatz (Jour. A. M. A., Feb. 15, 1913, p. 516).

NOTICE.

Disregard the name of Dr. R. E. Peck, appearing in the March issue, page 134, under "new members." The above is not a member.

NEW MEMBERS.

Ledyard, C. C., Cloverdale.
Francis, L. H., Glen Ellen.
Pettis-Turner, Zilda, Santa Rosa.
Thomson, A. M., Sonoma.
Urban, K., Petaluma.
Ghidella, Edw. J., San Francisco.
Victors, E. A., San Francisco.
Prince, L. D., San Francisco.
Grubbs, T. Elmer, Mammoth, Cal.
Yates, J. E., Lemoore, Cal.
Brooks, E. R., Riverbank.
Barry, R. K., Turlock.
McKee, J. A., Sacramento.
Seavey, Minnie A., Sacramento.
Hamilton, I. B., Orosi.
Sawyer, Edmund H., Greenwood.
Collins, Clinton D., Fresno.
Mountford, G. T., Coalinga.
Foote, Chas. G., Long Beach.
Himmelsbach, Wm., Carmel-by-the-Sea.
Graham, L. B., Pacific Grove.
Dorais, L. P., Eureka.
Ottmer, Florence H., Eureka.
Mooney, C. N., Blue Lake.
Woodward, Frank A., Los Angeles.
Woodward, A. L., Los Angeles.
Griffith, R. B., Los Angeles.
Lefler, Anna B., Los Angeles.
Clair, Frank F., Los Angeles.
Burnside, Charles, Los Angeles.
Collins, Wm. F., San Dimas.
Reynolds, Cecil Edw., Los Angeles.
Purviance, W. E., Los Angeles.
Zeiler, A. H., Los Angeles.
Richards, Jas. W., Monrovia.
Jones, Isaac W., Los Angeles.
Roome, A. E., Los Angeles.
Graham, C. M., Sultana.
Rees, B. R., Bakersfield.
Cuneo, Peter J., Bakersfield.
Addis, Thomas, San Francisco.
Eaves, Jas., San Francisco.
Cleary, E. W., San Francisco.
Staniford, K. T., San Francisco.
Strange, S. P., San Francisco.
Wintermute, G. P., San Francisco.
Dungan, J. F., Exeter.

RESIGNED.

Craig, Thos. L., Soledad.
Stover, W. M., San Luis Obispo.

DEATHS.

Lacy, John McClellan, Santa Ana.
King, A. M., Santa Maria.
Smith, Geo. B., Los Angeles.
Cross, Hugh, Dunsmuir.
McMahon, Frank A., Fresno.
Musgrave, Robt. W., Hanford.
Silverberg, Geo. M., Los Angeles. (licensed December, 1912).

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Notify the office promptly of any change of address, in
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be corrected.

VOL. XI

MAY, 1913.

No. 5

EDITORIAL NOTES

WHO ARE YOUR FRIENDS?

There are a number of people who have been pretty good friends of yours; it is beside the question that they are working for their own reasonable profit. They have helped you to build up your JOURNAL and they make it possible for you to have a journal of the size and make up of the STATE JOURNAL. Do you trade with your friends, other things being equal, or do you not? Did you ever stop to think that there is scarcely a thing that you need to buy, from green soap to groceries, from surgical instruments to sermons in print, and that there is not an institution to which you may wish to send a patient, that is not advertised in your JOURNAL? If you do not believe this, and there are always some who will not believe without evidence, just look carefully through the advertising pages and you will be convinced. In these pages your friends, your advertisers, present for your notice and attention, a great variety of wares; all are good and reliable, or they would not be there. Recognize your friends when you see them and deal with them as they deal with you.

PHYLACOGENS, THE JOURNAL A. M. A., AND PARKE, DAVIS & CO.

"Schafer's serum" began out here in California and traveled East to Detroit where it was taken in by Parke, Davis & Co., dubbed "Phylacogen"

and recently very extensively exploited. Just exactly what goes into the patient when he is given Phylacogen, nobody knows; but we do know that it is terribly potent and by no means free from disastrous results. The *Journal A. M. A.* wisely called attention to the dangers, to the unscientific way of indiscriminately recommending a something of this sort known to be terribly potent. Parke, Davis & Co. come back, not with anything is the nature of argument or fact, but with the old, old cry of the "patent-medicine" faker—"personal animus"! The *Journal A. M. A.* quotes from letters sent out by Parke, Davis & Co., and signed by E. G. Swift, general manager, as follows:

"The real motive and animus of the attack are to be sought in the determination of Doctor Simmons to dragoon Parke, Davis & Co. into submission to the Council on Pharmacy and Chemistry of the A. M. A."

"The editor of the *Journal*, looking on the Council as his creature, has resolved to dragoon us into submission—to compel us to bend our neck to the yoke and introduce no specialty to the medical profession without the knowledge and permission of his Council."

Suppose, for the sake of argument, that anything so silly were true; that Dr. Simmons, or any one else, was trying to "dragoon" Parke, Davis & Co. into doing—what? Submit its preparations to the Council. And what would the Council ask, in that case? Merely that the product be of known composition, honestly made, honestly put before the medical profession, and honestly handled. Does Parke, Davis & Co. object to doing any of these things? It certainly would seem that they do so object; that the simple rules of the Council regarding honesty of composition and honesty in all advertised statements, are irksome to Parke, Davis & Co. Representatives of Parke, Davis & Co. are quoted as saying that the *Journal* was "unfair" to Parke, Davis & Co. in the Taka-Diastase incident several years ago. What were the facts and what was "unfair"? The Council notified the house that Taka-Diastase, within a short time after being made, became practically worthless and that the claims made for it were extraordinary and untrue. This the house admitted. But did Parke, Davis & Co. either withdraw the product from sale or date the packages so that the purchaser could tell whether he was being cheated or not? And then because the *Journal A. M. A.* published the truth about this Taka-Diastase it is accused, by the detail men of Parke, Davis & Co., of being "unfair" to that great manufacturing house! Which is "unfair," the *Journal* in telling the truth or Parke, Davis & Co. in allowing some innocent purchaser to pay his money for a worthless article?

THE ANNUAL MEETING AT OAKLAND.

The Forty-third annual meeting of the State Society, held at Oakland April 15, 16 and 17, was a great success. It is not possible to print all the reports, minutes, etc., in this issue of the JOURNAL and so they will all be held back and the whole story will be printed in the June number. The registration was the largest in the history of the Society—618. On Monday evening there was a dinner of secretaries of county societies and a general discussion of county society work that was distinctly profitable. The Council has authorized the calling of such a meeting next year and recommends that it be a permanent feature of the annual meetings. Santa Barbara was chosen as the place for the next meeting, and a large attendance will probably be there to enjoy the sessions. The officers elected for the year are as follows: President, F. C. E. Mattison, Pasadena; First Vice-President, Barton J. Powell, Stockton; Second Vice-President, George Tucker, Riverside; Secretary, Philip Mills Jones, San Francisco; Councilors, George H. Kress, C. G. Kenyon, J. H. Parkinson, O. D. Hamlin; Program Committee, A. B. Grosse; Public Policy and Legislation, F. F. Gundrum and T. C. Edwards; Committee on Arrangements, Rexwald Brown, Benj. Bakewell and G. Van T. Hamilton; Committee on Public Health, C. C. Browning, Jno. C. King, W. F. Snow, G. F. Broderick and N. K. Foster; Delegates to the A. M. A., for two years, George Hare and V. G. Vecki; Alternates, Clarence Moore, Lem Adams and Emmet Rixford. The scientific sessions were remarkably well attended and the discussions were good. On the whole, it was certainly a most successful meeting and the physicians of Alameda County did themselves proud as hosts and entertainers; they certainly earned the thanks of the Society.

A MOST VALUABLE BOOK.

Beginning, some seven years ago, as a very small pamphlet, the annual edition of "New and Non-official Remedies" has grown till the edition for 1913 has indeed reached a most respectable size. It is a book that should be on the desk of every physician who ever writes a prescription. It is difficult enough, even with all the tremendously valuable work that the Council on Pharmacy and Chemistry of the American Medical Association has done for us, to tell those remedies which are decently and honestly made and marketed from those that are not; it is impossible to do so without frequently consulting this book. "Containing descriptions of all proprietary articles which the Council has found to comply with its rules, it is most desirable that physicians should possess the book"—and use it. It may be had, paper bound for 25 cents, and cloth bound for 50 cents, by addressing the American Medical Association, 535 Dearborn avenue, Chicago. Send for a copy today.

DISASTER BY WIND AND FLOOD.

The disaster which came upon the citizens of Omaha and of many cities and towns in Indiana and Ohio, was truly a terrible one and not soon to be forgotten even though the earlier accounts seem to have been greatly exaggerated. A large number of our professional colleagues have suffered and to them we extend our heartiest sympathy; our members in San Francisco can certainly feel for them a sympathy unknown to those of us who have never been so harshly treated by maddened and destructive nature. President Wilson showed the country a wonderful example of his ability in the prompt orders which he issued in regard to life saving and sanitation; to him we extend our humble appreciation. Our own dear Senator Works gave us cause for congratulation in that he did not wire the flood sufferers that all the eddyites in the country were giving them absent treatment.

MECHANIC OR MEDIC?

No little food for thought is furnished in a letter recently received from one of our members who has practiced his profession for a number of years in one of the most attractive parts of the state. And, too, it is a rather sad, concrete example of the pathetic side of a physician's life.

"Whenever I have occasion to advise a young man about studying medicine, my counsel is this: If you deeply love the idea, have a first class mind, a good, thorough intellectual training and at least a university degree, and have the means and disposition to devote ten years to study and hospital experience, go ahead; you may make it worth while. But some turn on me with the assertion (which is true) that many men and women are in practice making good livings who have not had one-fifth as much preparation; and if I say to them you would better be a mechanic, they accuse me of trying to keep down competition for selfish reasons. Here is an argument in point: During the recent heavy rains, the writer was called to see a sick child about two miles distant. On the way my machine stopped in the midst of water about knee deep. A person nearby telephoned to a garage about a mile away to come and pull me out. While waiting, a telephone lineman came along and did that service for me and after drawing the water out of my carburetor I went on to see the patient. Finding the family poor, I charged one dollar for my time and services. Meanwhile the garage man came in his old machine to the scene of my discomfiture and went back home, probably taking about twenty minutes; his bill, which I paid, was \$2.50. He had no anxiety for the life of a child; he had no burden of responsibility; he had not even learned a mechanic's trade, and yet he did less and got \$1.50 more than I did!"

ON A NEW KIND OF SURGICAL LITERATURE.

It is time that the eye of reprobation be more specifically directed toward a new and regrettable departure in surgical literature. Certain publications have appeared in the near past whose purpose appears to be the exploiting of the surgical and especially the operative skill of their authors without permitting us to judge with any degree of certainty for ourselves of the quality of those virtues. Proclaiming themselves greatly sired, these books are in no wise great. A peculiarity common to this group is that all of them cease to instruct too soon for it to be possible for the student following them to be able to carry out with assurance the operative procedures which in the hands of their authors were reported to have given such gratifying results. In this relation we are reminded of the circumstance of an old lady, long since gone to her reward—deservedly a great one for she was a famous cook. Her forte was the preparation of a most delectable dish known to early Californians as "Chancha Rollado." Many and importunate were the requests she received for the recipe, and gracious and detailed were her responses. Only when the dish prepared according to the given recipe came on the table it no longer was the ambrosial chancha rollado. The wise old lady had left something out of the recipe she gave away. If you wanted chancha rollado you still had to go to her house to get it—and her fame was more enduring than life itself. Had she charged us a dollar for the incomplete recipe the analogy between her work and that of the eminent authors referred to would have been complete.

S. N. I.

RESOLUTIONS ON CONTRACT PRACTICE.

Santa Cruz County Medical Society adopted, at one of its meetings, some resolutions on this subject and then sent a copy to every member with a request that he notify the secretary in writing whether he approved of them or not. It is a suggestion for other county units to consider and the resolutions follow:

Resolved, That no member of the Santa Cruz County Medical Society shall be permitted to render services to any member or members of a so-called Hospital Association, Corporation, Lodge, Society or other association, organization or institution whose purpose it is to provide medical or surgical services to its members at an agreed stipulation per member; provided, that the above classes shall not apply to industrial corporations, which, as a matter of humanity or emergency, need furnish medical or surgical aid to the bona fide employees appearing on their pay roll, nor to physical examinations of candidates for life insurance.

Do you approve of these resolutions? Answer YES or NO and notify the secretary at once. This will come up for final action at our next meeting.

THE COST OF LIVING; THEN AND NOW.

John Staats, a physician, wrote on the first page of his account book, "The twenty-ninth day of January one thousand eight hundred and twenty, we arrived in the town of Cato, Cayuga, New York." Dr. Staats changed his location quite as much as some physicians in California do; he went to Malta in May 1824; "Started from Malta May 8th and arrived at Lenox, Madison Co., the 14th, 1827"; in 1831 he went to Whitestown; in April 1832 he moved to Dearfield and Nov. 10th, 1832, moved to Geneva. Many of the entries in the book are quite curious and the charges are no less so. There are many entries like this: "Samuel Hunter. To medicines; (child)—0.12½c." Seldom does an entry appear in so large a sum as \$1.00 and most of them are from 12½c to 37½c. His regular charge for a confinement seems to have been \$3.00, for we find a number of such entries as this: "Talmon Olmstead; To visit, deliv'g sps. 3.00" in which "sps" evidently means spouse, for in other places it is spelled out. But sometimes he altered his rates, for in one place he has entered a charge for delivering "spous" of twins, of \$6.00 and then, his conscience probably hurting him, he has charged it to \$5.00—a reduction on wholesale lots! On January 8th, 1821, there is an entry that is startling: "Lewis Traviss; to visit, attendance two days and three nights, medicines and delivering spous; \$5.50." The saddest thing in connection with the entry of this exorbitant charge is that it is one of the few not marked "paid"! But there were compensations, in those days; thus we find, in his expense account, "To making black vest 0.75; To making a white vest, 0.75." He bought a "large hog" for \$5.00 and paid for it by note. Another entry is "For one quart of whisky and a corn basket 0.50," which we must concede is not high. There are quite a few entries of whisky and the price varied from 12½c a quart up to \$1.50 for a gallon; this must have been very old and rare! There was evidently another doctor in the vicinity for we find that to "Doct. I. W. Squyer" he was indebted for "2 vol. Cullen's Materia Medica \$1.00" and for various items of medicines and "chunk bottles." Good Dr. Staats had a number of patients and he was a good collector, even though he did move around quite a whole lot.

THE AMERICAN ROYAL COLLEGE OF SURGEONS—J. B. M.

In this fair month of May, in the good city of Washington, is to be held a most remarkable meeting for the purpose of conferring upon American surgeons (query: who—or what—is a surgeon?) a collection of letters indicative of some title, both title and string of letters being subjects for discussion. Martin (of *Surgery, Gynecology and Obstetrics*) and Murphy (of *Murphy's Clinics*)—or should it be Murphy and Martin?—started the game and have skilfully encouraged the ambition to belong to something and decorate one's name with letters. How are the honored ones

to be chosen? From the subscription lists of *Murphy Clinics and Surgery, Gynecology and Obstetrics*? Or shall the applicant merely have to attend and register at one of these huge surgical Martin-Murphy clinics? Or must the applicant have a real case of murphitis before he can be considered as a proper one to bear the mystic letters? May we suggest a few titles for this personally-conducted eruption into medical education? How would the "American Surgical Society" do? This could be used for the terminal-letter part quite nicely; "A. S. S., J. B. M. Or this one has been suggested: "American Royal Surgical Emporium, joined by me 1913," which would string out behind one's name quite nicely. Think of the ponderous psychological effect it will have upon one's patients to have one's cards and stationery printed with a whole lot of extra letters after his name. And we'll bet a suit of clothes to a tin-type of Murphy, that a lot of people will take this quite seriously!

WASSERMANN'S AND WASSERMANN'S.

Judging from the circulars sent out by various laboratories, it would seem as if the price of Wassermann reactions had at last reached a sane level. The high prices asked by some serologists a couple of years ago have undoubtedly led to the sprouting up of a number of new laboratories. The reduction in price will permit far more frequent tests than heretofore.

In spite of all that has been said and done, there is still a great deal of misunderstanding in regard to the interpretation of results. We recently heard that a certain "doctor" guaranteed that after a definite length of time he could absolutely furnish his patients with a negative report! It was facetiously suggested by a physician present that a negative report could easily be obtained at any time in any case—"send blood to two different labs, one is sure to be negative." The personal equations of the serologists and the technics employed are the great points upon which we rely when we accept a report at face value. There are probably no two men or institutions in any other city in this state, employing the same technic. A very conservative and conscientious physician of San Francisco has on various occasions submitted blood to two different serologists, the reports in several instances being "+++" from one and "absolutely negative" from the other. In an informal discussion of this question, one gentleman ironically stated that he felt that "absolute reliance and implicit confidence should be placed on the findings of the serologist if they agreed with all other clinical evidence, and where the result was not in accord with the clinical evidence it should be repeated one or more times," the physical examination, of course, to be likewise carefully checked up.

It must not be thought that we of the West are alone in our difficulties. Even in the large medical universities abroad it has been noted that in cases where clinically one would expect positive reactions with the blood and cerebrospinal fluid, such reactions may be obtained by one method and not by a second; or where negatives were expected, the reactions might be positive by the second method and negative by the first.

We see no reason why our serologists should not get together and decide upon a uniform technic—the chief points being, of course, to attempt to use an antigen of equal potency, and to decide as to whether partial inhibition of hemolysis should be reported as a positive or as a negative. A number of medical men are likewise pleading for a uniformity of technic. If serologists cannot get together on this matter, why not insist upon their furnishing on the reverse side of their report an exact description of the technic employed?

It must further be borne in mind that a positive Wassermann does not necessarily mean that the symptoms of which the patient is complaining are referable to an active syphilis. We know of several instances where patients have been operated on for malignant growths in various portions of the body when the Wassermann test was positive.

We should be careful to tell our patients who have positive reports, that the blood gives a positive reaction with the Wassermann test—not that they have syphilis. We know of one instance where a patient with a history of repeated Neisser infections, as well as frequent chancroids, was informed, in the presence of vague pains, that his blood was positive to this test, but that before ascribing his trouble to a luetic infection further observation was required. Dismissing his physician in a huff, a second test was performed by another serologist, with negative results. The patient, rather excited and driven by a guilty conscience, had two more tests performed by different men in New York; both of them being negative, he felt that he could rest in peace. Incidentally, he has refused to pay his first physician on the ground that instead of helping him, the latter has caused him to spend a great deal of money!

It is possible that the luetin reaction introduced by Noguchi, if it proves as valuable as its author believes, will be a decided help, not in replacing, but in checking up the results obtained by the serum test. We feel that in a given case, positive reactions repeatedly obtained by careful workers can be interpreted as almost specific and pathognomonic of syphilis.

This article is in no sense an attempt to discredit the test, nor does the writer fail to recognize the great benefits that have been derived from it, it is rather a plea for a uniformity of technic, and a rational interpretation of results on the basis of a thorough history and physical examination of the patient.

R. B.

IMPROVING MEDICAL EDUCATION IN THE UNITED STATES.

At the time of writing, the state legislature has before it a number of bills, all destructive of the present medical law and not evidencing any proper compensatory constructive intent. Moreover, the administration itself is favorable to changes in the law which will lessen, in great measure, its value to the people. Finally, the people themselves, they who are the most interested in a proper medical law whether they acknowledge it or not, are quite indifferent to their own fate in the premises.

This puts in a very few words the *Status praesens* in California and the prospect is not a satisfactory one. It is, then, a great relief to turn to the current annual report of the President of the Carnegie Foundation and to read his review of the general medical situation in the United States and in Canada, and see what has been gained and how much it is, and how really nothing has been lost in the wider field which must include the narrower.

With a reiteration which is necessary in order to reach the understanding of everybody, President Pritchett points out the fundamental difference between the American way and the German method, and insists again upon the absolute necessity of putting medical education wholly into the hands of educational bodies as a matter of education, and taking it away from the proprietary professional schools, "whose function is to get the ill trained and the unfit into medical practice by the shortest route."

He comments upon the fact that under the American way Boston, New York, Baltimore and Chicago all offer medical educational facilities quite equal to those of Germany. He instances Harvard, Columbia, Cornell, Johns Hopkins, University of Chicago and the Northwestern University; but at the same time these cities permit schools of the cheapest and worst sort to exist side by side with the good, and he names the Boston College of Physicians and Surgeons, the Eclectic Medical College in New York, the Maryland Medical College in Baltimore, and in Chicago are the Bennett Medical College, the Jenner Medical College and the Herring Medical College. St. Louis does the same, for it offers the newly organized Medical Department of Washington University and, as a contrast, the American (Barnes) Medical College. While this is easily understandable—for no city can say there shall be nothing cheap nor fraudulent within its borders—the next point is less so. In this he refers to the educational insincerity of those universities which shelter under their academic protection medical schools over which they have no control and the ideals and methods of teaching in which may be wholly different from those in the university itself. For example, Bowdoin College has the Main College of Medicine; Marquette University has the Milwaukee Medical College; the University of Southern California has the Los Angeles College of Physicians and Surgeons; Loyola University has the Bennet Medical College; Willamette University in Oregon its

medical department, the University of Tennessee and its medical school; Union University and the Albany Medical School; Lincoln Memorial University and its medical school; the Texas Christian University and the Fort Worth School of Medicine; Cotner University and its medical school at Lincoln, Nebraska.

There is no carping in making these two points. The instinct of self-preservation is, without it, recognized and that a poor and inefficient institution will struggle on in the hope that an angel may come who will provide means for betterment and bring the good times that are dreamed of, is acknowledged. This is especially true of those universities which have, from the days of the didactic and quiz era, carried medical schools for which they have been unable to supply means for development and which have, necessarily, fallen behind the procession, but which old association protects from ablation and extinction. And the same instinct explains the frantic struggle and loud-voiced protest of the sham school against laws of any kind so long as the sham is a profitable one.

From this point on, however, there is report of progress, and progress that is very frankly credited to the Council on Medical Education of the American Medical Association in the first place and to the Association of American Medical Colleges in the second place. A list is given of universities that have "abandoned clinical schools which they felt were unnecessary and for whose support they could not hope to provide." These were the University of North Carolina, the University of Missouri, the University of Denver, the Central University of Kentucky, Chattanooga University, and Washburn College at Topeka, Kansas, while the University of Illinois has dropped its clinical years. He notes the improvement of standards, the bettering of the teaching, the larger support and the closer and ampler hospital relations in the better of the existing schools as positive subjects for congratulation. Especially is the Council commended for having taken up the study of the English methods of examination, which are "largely practical in character" and have the tendency to drive out from the schools vicious teaching methods. Then the report comes back, as all reports on this subject must do, to the secondary school. President Pritchett says: "Experience . . . proves that the requirement of a good education as a preliminary to the medical school, exercises a larger influence for good than all other requirements combined. The simple demand that the physician shall be an educated man is the most important step toward a higher plane for the profession." In this special context the Association of American Medical colleges is commended for having so framed its rules that the high school basis for entrance shall not be vitiated by the admission of *conditioned* students or the acceptance of the so-called "*equivalents*"—for no school doing this may remain a member of the Association.

All these gains, and the others that cannot here be itemized, are a comforting offset to the thought of the chaotic state of medical legislation at the

Capitol, and make it clear that medical education, and with it medical practice, and with that the care of the people, may be safely intrusted to universities and to the American Medical Association. Let state governments deal with the subject as they please, let even the central government be misled, as it may be by zealous self-seekers and persuasive perverts, the progress that is reported is proof that in the true universities and in the representative body of the profession the course will always be toward the highest goal, the producing of the best and most useful type of men to care for sick humanity.

Statistics are said to be just as truthful as facts, and so these statistical facts are quoted in full: "The total of 166 schools of all kinds existing in the United States and Canada in June, 1904, has in eight years decreased to 117 in 1912. Homeopathic schools, of which there were twenty-two in 1900, have now fallen to ten; eclectic schools from ten to six; the physio-medical schools have entirely disappeared. The total student enrollment, which reached 28,142 in 1904, has now declined to 18,412. As the student bodies of the higher grade schools have steadily advanced in numbers, this considerable decrease has taken place precisely where in the public interest it should take place, namely, in the weaker schools. It is thus obvious that the destruction of one inefficient school does not merely result in increasing the enrollment of another; it actually and absolutely keeps a certain number of unfit men out of the profession." The "negative character"—as it is called in the report—of these facts does not detract one whit from their having a positive value in indicating the trend of events. Leaving present forces undisturbed to continue this work and making "sure that standards are genuine rather than higher" in the immediate future will accomplish what is needed quite regardless of any vagaries of any state legislation.

WHEN YOU CHANGE
YOUR ADDRESS, ADVISE US
PROMPTLY.

IF YOU DO NOT RECEIVE YOUR
JOURNAL REGULARLY, LET US
KNOW ABOUT IT.

ORIGINAL ARTICLES

SUMMER DIARRHEA FROM THE STAND-POINT OF THE CLINICIAN.*

By E. C. FLEISCHNER, M. D., San Francisco.

With the wonderful advances that have been consummated in prophylactic medicine during the past decade, one marvels that a more concentrated effort has not been made to limit the frightful loss of infant life due to that horrible result of heat and dirt, the summer diarrhea. As intricate and difficult as the problems may be presented by enteritis and its allied complaints to us, who are fortunate enough to live in this wonderful state, they are mild as compared to what one sees in the congested districts of our Eastern cities.

In a recent report of the Board of Health of the State of New York are some statistics that absolutely strike terror to any one reading them. In one town, and a small one, over 500 children died last year out of every thousand born before they had reached the age of one year. It has been conservatively estimated that 40 per cent. of the number died of summer complaint, and that at least 66 per cent. of these cases were preventable. In other words, 134 babies in this particular town out of every thousand born died because of heat and filth, and primarily by far, the latter cause was the essential factor. Were a similar mortality rate to occur among cattle or pigs or horses, or any commercial commodity, the Government would very rapidly take steps to lower it; and why? Because the people and newspapers would demand it. And likewise why is it not demanded in this horrible slaughter of the innocents? Simply because the people have not sufficient breadth to appreciate the economical loss entailed in this enormous death rate. One might be justly criticized for discussing the lives of these infants from a financial standpoint, were it not definitely evident that that is the one feature within which lies the crux of the whole situation.

At this point it might be well to apologize for apparently digressing from the subject with which this paper has to deal, and yet since the most potent steps in the treatment of the summer diarrheas depend upon the prevention of the condition, a few moments devoted to this phase of the subject are surely apropos. It must not be understood that no effort has been made to stamp out this terrible set of diseases. In this country, as well as in Europe, national and international societies have been formed for the prevention and reduction of infant mortality, and inasmuch as over 25% of this mortality is due to the summer diarrheas, one will understand that attention has been primarily directed toward this particular group of diseases.

A great deal has been written as to what bearing heat may have upon summer complaint, and so many arguments have been advanced to show that there is some direct connection between the two that one must take cognizance of the fact. At the same time, one is struck by the difficulty in answering the following questions:

* Read before the Santa Clara County Medical Library Club.

1. Why are summer diarrheas relatively so infrequent among the infants of the well-to-do living in hot climates?

2. Why are they relatively so infrequent among babies who are fed upon milk that has been iced from the time of production up to the time of consumption?

Careful thought upon these two very important points leads us to the following conclusion: That high temperatures unquestionably lower the vitality of infants and render them more susceptible to disease, but that the primary effect of the heat is its influence on the increase of the bacterial content of originally dirty milk, rendering it more and more unfit for use. The question of humidity is likewise one which plays an all important part, and this probably explains why California sees fewer cases and less severe cases than one encounters in the depressing moisture of the Atlantic Coast. One cannot refrain from telling mothers of babies that they are fortunate to be Californians after he has spent a summer or two in the hot and humid East.

The intimate connection that the milk question has with the subject under discussion is so close that it is virtually impossible to discuss one without commenting upon the other, and yet there is scarcely any problem so difficult to decide as that which deals with a proper milk supply to a community. Here again, as sad as it may seem, it is the financial side of the proposition that brings us up against a bulwark of stone. The producers are interested, with few exceptions, only in the profit that can be gained; the distributor is likewise interested in this phase of the subject; and the consumer, as disgraceful as it may seem, is primarily interested in how small the cost may be. *It is not often that one finds cause or is warranted in criticizing the efforts of nature, but if ever an error were made in the natural order of things, it was when milk was so made that its dirt content could be manifold without being seen.* One has only to discuss this subject with a lay audience to realize the incredulity with which one's remarks are received, and as small as may be the extra cost of clean milk over dirty milk, those extra few cents are the barrier to the prevention of disease.

One could hardly refrain, in presenting a complete paper upon this subject, at this point from expressing himself upon the question of Pasteurization of milk. The demand for milk as a commodity is so great, and the number of tuberculous cattle is so great, that the most ardent enthusiasts on the subject of pure milk from non-tuberculous cattle realize perfectly that they can never expect the supply to equal the demand, so that we are confronted by the problem of how to have pure milk with the ordinary conditions under which market milk is produced. Until the people are willing to pay for the extra labor, and are sufficiently aroused to demand legislation governing the production of milk, it will always be produced in dirty barns, by dirty milkers from dirty cattle, because we cannot see the dirt. It devolves upon us, therefore, to devise some means whereby dirty milk can be rendered fit for consumption.

Many years ago Pasteur discovered that by raising the temperature of milk, or any bacteria-containing substance, to a certain degree, 160° Fahrenheit, for a definite length of time, twenty minutes, the pathogenic organisms are destroyed. This method of making milk fit for use has been advocated by the U. S. Public Health Service and students of hygiene everywhere, not because it is an ideal method of procedure, but because it is the best method that we have at our disposal at the present time for improving the general market supply. How has this advice been heeded? There is scarcely a large distributor of milk anywhere but who advertises that his milk is absolutely pure because it is pasteurized, and how is it pasteurized? The method of pasteurization as used in commerce is worse than useless. It is absolutely inefficient. The method used is one described as the flash method of pasteurization. The milk is raised to a temperature of 172° Fahrenheit and held there 1/10 of a second. This has been proven absolutely worthless by every laboratory that has investigated the process. It fails to kill either pathogenic or other bacteria. Here again the horrible question of finance is the demon. The apparatus for proper pasteurization is more expensive, and the time consumed and labor required are many times greater. At best proper pasteurization is bad enough for many reasons. First, it gives the farmer and his milkers a false sense of security, and they are not even ordinarily careful. Second, it changes certain chemical qualities of the milk, which is undesirable. Third, after pasteurization the bacteria grow very much more rapidly than before. Fourth, it gives the consumer a false sense of security. With these criticisms upon proper pasteurization, what can one say about the commercial flash method of pasteurization? Only that it is pernicious, malicious, harmful to the worst degree, and responsible for the death of many infants because it is the means of making a few extra dollars for the producer.

How can a proper milk supply be given to a community? In two ways. First, the Utopian method, which will only be mentioned here because, as has previously been stated, the supply can never be produced, is the certified milk, which is obtained entirely from tuberculosis-free animals and immediately iced and kept iced up to the time of consumption. Second, pasteurized milk, which has been pasteurized by the holding method and kept iced from the time of pasteurization up to the time of consumption. Were we able to succeed in having this method adopted, barring laxity in the home care of milk, summer diarrhea would be a disease which we would no longer have cause to fear. Whereas the legislators and those of us who may be classed as medical agitators are the ones who will eventually be the means of obtaining a pure milk supply, incidental to which will come condemnation and ridicule, it rests with the family physician to call to the attention of his patients the importance of the proper care of the milk in the home. This factor is far from a negligible one when one is discussing the question of etiology of summer complaint. Many a case of enteritis has been produced by careless handling at home of a

milk that was reasonably pure when it was delivered, and this particular element of the question must never be ignored in trying to discover the source of contamination.

There is no particular phase of medical sanitation that so thoroughly exemplifies our incongruity as that which allows and demands instant action and investigation whenever there is an epidemic of a milk-bearing disease such as typhoid fever, diphtheria, or scarlet fever, and yet which allows us to remain lethargic and self-satisfied when milk in a more subtle way is spreading destruction and death to thousands of helpless infants. There is surely no more disgraceful element in medicine than the enormous ravages of the summer diarrheas.

If this discussion on prophylaxis has been so length as to be wearisome, and this tirade on commercialism and filth as a cause of disease has been so unending as to have been ineffectual, it will at least be understood that it is from these two phases that the summer diarrheas can be most successfully attacked, and that nothing that may be suggested under the head of therapy can have the same value to the afflicted child as a little precaution may have had in preventing the disease. All of us realize that we are dealing with a type of illness that we can prevent if we are powerful enough to eradicate the cause. Unfortunately, as a profession we are not capable of removing an alarming condition, because in so doing we are interfering with a commercial profit gained even at the expense of infant life. It will take years and years before this all important question is sufficiently understood by the people to make them demand a food product for their infants that is not only too often a death-dealing poison, and until that time we who are over-enthusiastic on the subject will be styled as cranks and theorists who are trying to consummate the production of a pure food, when to the mind of the producer, distributor, and only too often the consumer, it is already good enough, even though every year its toll is thousands of deaths, enormous suffering, unbounded sorrow and lamentation that is felt only by the mother in the loss of her infant.

The gastro intestinal diseases of infancy have been a recognized entity since the time of Hippocrates, and from that time up to the present day much has been done in an effort to understand the etiology, and based upon the etiology innumerable efforts have been made to classify these conditions. To say the least, these classifications have been far from satisfactory. The American Pediatric Society in 1894 made a concentrated attempt to classify the intestinal disturbances of infancy, but the classification was so complex as to be useless. Recently Finkelstein of Berlin, probably the most active investigator of pediatric problems in Germany, compiled a classification and, whereas, it represents a careful and detailed understanding of the subject, it does not offer a very practical opportunity of drawing conclusions as to etiology or therapy. Perhaps for simplicity the old Heubner classification is as valuable as any, and this is based more upon the question of degree and

symptoms than upon any well founded principles. He divides the gastro-intestinal disturbances into 1, the simple forms of indigestion characterized by slight diarrhea, some vomiting, loss of appetite, without any evidences of either a severe toxemia or inflammatory processes. 2, the alimentary intoxications, characterized by marked toxemia, prostration, loss of consciousness, high temperature, without much effort on the part of the body to rid itself of the toxic substances in the gastric intestinal tract by vomiting or diarrhea. 3, the true inflammations or gastro-enteritis, the most prominent symptoms of which are diarrhea, with mucus, blood and pus in the stools, with slight rise in temperature, and as a rule not much general toxemia.

Whereas, the summer diarrheas are relatively infrequent in nursing babies, and whereas when they occur they are very difficult to explain, still they are encountered frequently enough to warrant some consideration. As one is justified in diminishing the strength of the food in artificially fed babies during hot weather, so it is very advisable to suggest to nursing mothers that on excessively hot days one or even two nursings should be omitted, and the baby given a feeding of boiled water or sugar solution. It is the common experience of all of us to diminish our diets in the heat of summer, and the lesson obtained from this is very well adapted in feeding infants. We have plenty of evidence to show that the ability to digest strong milk mixtures is markedly diminished during the summer months. The following experience observed in the Nursery and Child's Hospital in New York is a very excellent example of how low fat mixtures are better tolerated in summer than high fat mixtures. During January, February and March of 1906, about one hundred babies were being fed on various dilutions of cows' milk and the gains in weight were far from satisfactory. It was observed in practically all of these cases that the caloric needs of these babies were not being met and that they were suffering from underfeeding. In April of that year there was a change in service and an opportunity was offered to alter the methods of feeding. The fats were increased in all of the cases, and during the months of April and May the results were striking. Every baby gained in weight, slept better, and showed every evidence of thriving. Then came June, and with it an unusually excessive hot spell. One would have thought that these babies had been fed some rank poison. There was an immediate loss of weight, and marked diarrhea, which only subsided when the food was weakened. An examination of the stools in all of these cases showed that the babies were wasting enormous quantities of fat. This upset could have been avoided if the stools had been carefully examined as soon as the warm weather began, because all of these babies were probably excreting an excess of fat in the stools for several days before the actual diarrhea began. It could likewise have been avoided if the general principle had been recognized of diminishing the

strength of the food simply because the weather had become unusually hot. A lesson was taught, however, that was not forgotten, and the importance of this procedure cannot be overestimated. One of the most valuable steps in avoiding trouble in hot weather is not only to diminish the strength of the food that the baby is getting, but at times to substitute for the bottle of milk a plain sugar solution in water. Another very valuable method of avoiding an intestinal upset is to insist upon the milk being boiled on those days when by virtue of the heat it is most apt to be contaminated.

Referring once more to the question of nursing babies, it might be well to discuss briefly the advisability of weaning breast-fed infants during the summer. It is far better to wean a six months' old child in April than a ten months' old child in August. By the time the hot weather comes, the six months' old child has become thoroughly accustomed to the cows' milk, and a little care will prevent much trouble. With the ten months' old child, however, one often encounters the very worst types of summer diarrhea when weaning occurs during the intense heat.

A careful résumé of the literature relative to the treatment of the summer diarrheas is striking in that it offers practically nothing new beyond a few theories that do not always work out in practice. The results that have been obtained in reducing the mortality from these diseases have not been due so much to improvement in therapy as to improvement in methods of prophylaxis.

One point in the treatment of these diseases is of so great importance as to warrant special emphasis, and that is the question of early, prompt and efficacious methods. Only too many very severe cases of gastro-enteritis have occurred because an ignorant mother has changed a simple digestive disturbance into a markedly inflammatory one by the administration of paregoric. One finds, even among the more intelligent classes, the idea fairly well rooted that in case of summer complaint it cannot be proper to cause more evacuations of the bowels by the administration of a purgative when the child is already suffering from diarrhea. One argument that is constantly heard is that starvation and purgation will cause loss of weight, notwithstanding the fact that these two methods are the only ones that we have at our disposal for eradicating the diseased process which may cause death.

Unfortunately, nothing new is being offered to you in this paper. It represents merely an effort to call attention to many old facts, and to emphasize the importance of some that are not commonly recognized. If what has been read and is to be read proves to be too didactic, then the humblest of apologies must be offered.

Mention has already been made of purgation and starvation in the treatment of the summer diarrheas, and it is to the second of these two procedures that rather lengthy and careful attention should be given. Text-books and teachers have laid so much emphasis upon the necessity of starving diarrheal cases that the method has become more of a disease than the original illness. There is probably

no single therapeutic effort in the whole category of medicine that has been so thoroughly abused as this pernicious practice. If the adjectives applied seem to be extraordinarily forceful, it is only because the observation of a large number of babies suffering from starvation rather than the original disease warrants them in being so. The general principle may be laid down that it is never justifiable to starve a sick infant over 48 hours, and yet one is constantly encountering sick babies who have been ill one, two, or three weeks, and who have been fed only on barley water or albumen water because the stools remained green. The surprising factor in so many of these cases is that they exist as long as they do when they are being starved to death. It is not usually recognized, but in a large percentage of those cases in which green stools persist for days, they are an actual symptom of starvation, generally called "starvation stools." Everyone who has had much experience with infants will recall cases of newborn babies who were not gaining weight, in which cases the stools were green, and it was assumed that the mother's milk was not agreeing with the child. In 90% of these cases it is not that the milk is faulty, but that it is scarce, and the green stools are a definite representation of insufficient and not inefficient food.

What then is the result of this persistent use of barley and albumen water? It is two fold. First, it so lowers the vitality of the body that it becomes an easy prey to offending bacteria, either the original source of the disease or secondary invaders. Second, the body not having sufficient food, uses up all of the glycogen in the liver, and then must necessarily use up the excess of fat stored up in the tissues. With an insufficiency of carbohydrates the oxidation of the fats is imperfect and there results an acidosis, and later an acid intoxication with the presence of diacetic acid and acetone in the urine and the infant is a victim not only of an extraneous intoxication, but of an auto-intoxication.

The importance of urinary examination in the summer diarrheas cannot be overestimated for several reasons. In the first place, whenever urinalysis shows an excess of acid products, it is an absolute indication that the patient should receive more food, irrespective of the other symptoms. Secondly, urinalysis gives us considerable data from a prognostic standpoint, the absence of casts and albumen being a very favorable sign, and the presence of these abnormal products in excess being very unfavorable. In the third place, urinalysis will often show that the apparent intestinal disturbance is in reality a secondary affair. There is probably no more constant symptom of the colon bacillus infections of the urinary tract, especially in infants under one year, than diarrhea with mucus in the stools, accompanied by high temperature, and it is a common practice, especially in hospital work, to have babies sent in who have been treated several weeks for an intestinal disturbance, which only subsides when the genito-urinary infection is discovered and treated.

Discussing once more the question of starvation,

one naturally asks, "How can this be avoided?" Milk in any form will disagree with these cases for a long time. True, perhaps, but not so essentially an axiom as has been generally recognized. The starvation is best prevented by sugar in some form, and this is always preferably a malt sugar. It is universally agreed now that in the digestive disturbances of infancy the malt sugars play a very important role, and that they frequently produce a gain in weight when milk sugar is absolutely inefficient. For this reason maltose is the carbohydrate that is employed after twenty-four to forty-eight hours of starvation. Pure maltose is, unfortunately, so expensive as to place it beyond the range of practical use, so that one prescribes one of the prepared foods that is almost entirely malt sugar, such as malted milk. The directions that are usually given in the mild forms of summer complaint are to administer one-half to a tablespoonful of castor oil, give barley water for twenty-four hours, then malted milk, one teaspoonful to one ounce of water, and at the end of twenty-four hours substitute one ounce of boiled milk for one ounce of water in the malted milk mixture. At this point, having mentioned boiled milk, it might be well to elaborate on the value of this substance in the diarrheas. Everyone agrees that the continued use of boiled milk is not desirable, and yet where one has a child who is having three to four greenish, curd-containing stools a day without any evidence of constitutional effect, there is no one step that will clear the condition up more quickly than the administration of a cathartic and the employment of a boiled milk formula for several days.

In the more severe forms of gastro-intestinal intoxication, and gastro-enteritis, the initial steps are essentially the same. More pronounced symptoms call, however, for additional measures, and one can do no better, perhaps, than discuss the treatment of the various symptoms that may present themselves.

Vomiting. After one has assured himself that the persistent vomiting that is often encountered is not a sign of intussusception or volvulus, and is equally positive that he is not dealing with an inflammatory condition in the appendix or other abdominal organ, the stomach tube is one of the most valuable aids in infantile therapy. After the stomach has been thoroughly lavaged, the cathartic can very efficaciously be placed in the stomach through the tube and is usually retained.

Anorexia. Occasionally, either due to a complicating stomatitis, or possibly due to an aversion to food, gastro-intestinal cases will refuse nourishment in every form. There is no type of case more difficult to treat than this one and they are relatively frequent. Here again, in small babies the nasal tube, and in larger babies the stomach tube prove most valuable. Anyone who has used the nasal tube as a method of feeding can recall cases where life has been actually saved by giving nourishment in this manner, and as surprising as it may seem, the technic is most simple.

Blood and Mucus in the Stools. This symptom

opens up to us the whole question of colonic and rectal irrigations, upon which one finds a very great diversity of opinion and methods. Upon one particular point, however, special emphasis must be made. The common practice of frequent irrigation of the bowel in all cases of summer diarrhea is a great mistake and unquestionably does much more harm than good. One who sees many of these cases can recall numerous examples of a constant irritation and consequent inflammation being produced and maintained by frequent and persistent irrigations. There can be no question that in cases showing an involvement of the lower bowel, that colonic washings are of value, provided that they are used with judgment and care. It is never necessary to make use of them more than twice daily. What should be used is also largely a question of opinion. There can be no doubt, however, that the chief value obtained from colonic flushing is the mechanical removal of noxious material rather than any direct antiseptic action. It is hardly logical to assume that antiseptic solutions in sufficient strength to destroy offending organisms can be used without at the same time destroying the rectal mucosa. If it is desired to use some preparation having slight antiseptic action, nothing is more serviceable or less irritating than a weak straw-colored solution of argyrol, which has been claimed by some men to have a very excellent action.

Tenesmus. There is probably no more unpleasant symptom in all the diseases of childhood than the frequent, painful small bowel movements seen when the intestinal inflammation is low down in the colon. To relieve this, nothing is more efficacious than two-ounce injections of starch solution, containing an amount of Tr. Opii proportionate to the child's age, used every four hours. External applications of heat to the rectal region will also frequently ameliorate this distressing condition.

Irritation of the Skin Around the Rectum. It may seem strange to have this very secondary symptom discussed, but whereas it has no importance as far as the life of the child is concerned, it is very important as a cause of marked discomfort. This can only be treated after determining the reaction of the stools, more apropos of which will be said a little later in discussing the therapeutic value of buttermilk. When the stools are very acid, local applications of bicarbonate of soda solution will usually check this unpleasant condition, and when the stool is alkaline, local applications of a weak buttermilk dilution, or of boric acid ointment will ameliorate it.

Loss of Body Fluids in Excessive Amounts.

Nothing is much more pitiful to see than an infant who has been sick several days with an attack of gastro-enteritis and who has every earmark of having lost a great deal of serum. With sunken eyes, sunken fontanelle, and with the skin hanging in folds all over the body, not only is he an object of pity, but he is truly an object over which to be alarmed. These cases require large amounts of saline and they require it immediately; nothing meets the requirement as quickly or as efficaciously as hypodermoclysis, and nothing is quite the life-

saver in the severe cases that this procedure is. There is always plenty of room under the skin of the abdomen or axillæ, and in the bad cases 150 c.c. can be given every six hours. Next in importance is the Murphy method of enteroclysis, with which you are all familiar. A simple apparatus for using the Murphy drip is shown here tonight. The important point is not to have the solution enter the rectum too quickly. Fifteen to twenty drops per minute are all that can be absorbed by most babies, and if it is administered more rapidly it will usually be expelled, as is the case with saline enemata that are so frequently misused in diseases of infants.

Cardiac Failure. All that has been said in the previous page on the use of hypodermoclysis can be repeated here. As to the value of drugs in cases of failing heart muscle, that is a point upon which there is considerable doubt. The question of pushing a failing heart is one of the most important in pediatrics, and in the past it has unquestionably been overdone. If the general theory of rest in the treatment of diseased organs is a correct one, there can be no doubt that many, many times the overuse of drugs does more harm than leaving things absolutely alone. If there are any therapeutic agents which are of value, they are three in number—opium, camphor and caffein, their value diminishing in the order named. It is a rather common practice to administer camphorated oil in ten minim doses hypodermatically every 2-3 hours, or caffein citrate in $\frac{1}{4}$ and 1 grain dosage every four hours, but in opium and rest lie the greatest of all heart stimulants.

A paper upon this subject would hardly be complete without some mention being made of buttermilk, and it is in this connection that the value of litmus paper must be discussed. In every case of summer diarrhea it is important to know what the reaction is of the stools. In those cases in which the invading organisms are of the putrefactive, alkali-producing variety, then buttermilk dilutions are of use in treating the cases after the initial purgation and starvation. The dilutions must at first be weak, and it is advisable to add some sugar to the milk to further the production of the lactic acid bacilli.

In the summer diarrheas, as in all other groups of diseases in medicine, each case is a law unto itself. It is only possible to lay down certain principles of treatment, realizing that they must be modified to meet the individual needs of every patient. Nothing new has been offered in this paper, essentially because there is practically nothing new to offer. In writing it an effort has been made simply to call attention to rational methods as a means of cure, and in this connection in concluding may the great danger of prolonged starvation be once more emphasized as the one grave misconception and error in our knowledge of the treatment of the summer diarrheas.

ON THE RELATION OF THE ACADEMIC MEDICAL SCHOOL TO THE MEDICAL COMMUNITY.*

By H. C. MOFFITT, M. D., San Francisco.

It is unfortunate for us all that engagements of President Wheeler prevent his being here this evening,—it is for you particularly unfortunate that I have been selected to speak in his place. We shall reach a better understanding if, at the start, it is determined what is meant by an "Academic Medical School." It is a question that has been discussed in detail by such men as R. M. Pearce, Cabot, Edsall, Huntington, Barker, Hewlett and that is, in some of its aspects, familiar to you all. For some years it has been a fact generally accepted that the work of the first two years in medicine must be in the hands of men who could devote all their time to their special departments—unhampered by the cares of practice—men who would be teachers but above all investigators, active in the advancement of medical development and knowledge. With the acceptance of this fact began the passing of the proprietary school; no institution dependent upon fees of students alone can long furnish the right men and proper equipment for the work and laboratories of the first two years. With the advances in student preparation and the standards of the first years in medicine, with the tremendous widening of the whole medical horizon, it soon became apparent that instruction in the so-called scientific branches was developing faster than the teaching of the clinical years, sometimes developing even at the expense of the clinical years. The gap widened between "scientific" and clinical departments, and it became necessary to find men with more time to devote to the development of the clinical years. It was realized that, as soon as practical, clinical teachers must be paid for part or for all their time, that the practicing physician could no longer cope unaided with the situation, that the last years of medicine needed the special teacher, organizer, investigator even more than the first.

In the recent plan adopted by the Regents of the University of California it is recognized that men of different types will be needed in the development of the medical school of the future. The practitioner with advantages of experience, with catholic spirit developed through touch with all kinds of men can not be spared. It is necessary, however, to have, as well, heads of departments, assistants, teachers, investigators who will be paid by the University and who can give part or all of their time to the work of the school. It is the expressed opinion of the Regents and of the President of the University that to develop to best advantage all departments of medicine must be kept closely in touch and, in the near future, must be brought together in San Francisco. In order to get the right kind of men it is realized by the University that it is not enough to pay them for their services but that a suitable place must be provided for them in which to work. A hospital is to the clinical years what laboratories are to the first

* Read at the General Meeting of the San Francisco County Medical Society, September 10, 1912.

years and no scheme of development can be complete without inclusion of a hospital and out-patient department directly under University control.

Given such a plant with all departments of the school grouped about it, I would like in a few words to give my views concerning the development on an academic basis of the department of internal medicine which may be taken as a type of any other department. Until recently my opinion was the common one of most practitioners, that a man might head such a department and still give time to outside consulting work and practice, that through help of assistants, trained in different lines of work he might direct teaching and inspire a sufficiently enthusiastic investigation spirit. It is my firm opinion *now* that the work demands a man specially trained in other lines as well as medicine and that it demands practically his whole time; a private clinic should be part of the general University Hospital and give him opportunity to concentrate all his work under neighboring roofs. Such a man may be primarily a teacher but he must be an investigator as well. No productive clinic can be governed by a mere teacher. Men of coordinate rank may be practitioners devoting but part time to University work and their teaching may even be done in other hospitals. Assistants must be paid so that definite work may be demanded from them. Opportunity should be given some assistants to enter the career of teachers or investigators without necessity of practicing and assistants should from time to time be relieved from routine duties and given time for special work. As far as possible I believe men in charge of medicine in the out-patient clinics should be given work in the hospital wards as well.

With all years of medicine together, with the men of the first years realizing more definitely what the student needs for his clinical training and with the clinical men directly in touch with the applications of chemistry, pathology and physiology to the clinic, with a University Hospital and out-patient department at command—with the staff well organized—the student of the future should have far better opportunities than he has now. Instruction in medicine should begin in the student's second year. In the third and fourth years he should be in the wards with increasing frequency. Trained in more accurate methods, encouraged to observe and to think rather than mechanically to remember, knowing himself to be an important cog in the whole hospital scheme, the student can scarcely help cultivating habits of honest work that will influence strongly his professional career. Before long all graduates will serve a year as internes preferably in their own hospital and one great function of a University clinic is to develop the right kind of interne. There is probably no influence so powerful in a hospital or so important in shaping the student's character as a strong *esprit de corps* among the internes. It sets and raises standards of its own, determines what must be done, above all what must *not* be done. Its unwritten laws are more far-reaching than the most stringent hospital regulations.

The education of the community to a proper ap-

preciation of modern medicine and of the well-trained physician is as important a function of the University as the training of students. Standards in medicine cannot be set by legislative acts regulating medical practice. State licenses to practice tend after all to put all physicians on the same level. Medicine must emerge from the mystery and mysticism of the past and the public must learn more of the work and ideals of medical men—it must be taught to discriminate between good and bad doctors, between good and bad hospitals. A good hospital plant with proper staff, nurses, internes and students can be made a powerful educational factor in the community. Lectures, even clinics, should be offered the public. Social work starting from the hospital and out-patient department can help tremendously in disseminating the teachings of preventive medicine. The academic medical school should encourage its graduates to return from time to time to keep in touch with advances in medicine. It should provide fellowships that will enable investigators to pursue original lines of work. It should offer clinics, lectures and chances to do special work to the local profession; it should welcome advice and honest criticism from the profession at large. Through summer schools, with the advantages of our climate, opportunity might be given to many physicians of the coast to do laboratory or clinical work or to work out special problems.

But these benefits are after all small in comparison with the indirect results possible to obtain through education of the public and through raising of standards of instruction, of students, of graduates, of the profession. Animosities die away, men pass and the question of the academic medical school may be decided in future by results and not by the personal factor. Can laws of shifting legislatures or regulations of medical societies compare with the influence in a community of groups of men with minds trained by preliminary study, in touch with work done in the best ways, strengthened by student, hospital and University traditions, on fire with the spirit of scientific truth and honesty? The two big Universities of the coast have no selfish aims in the development of academic medicine. They, with other institutions of our country, have started on the long road that must be traveled, they will smooth and straighten it with encouragement and financial aid, they trust the medical profession will travel upward with them.

Discussion.

President Jordan: You understand, of course, that I am a medical imposter, so do not expect me to tell active physicians anything of medicine they do not already know. I took my medical degree with Harvey Wiley 37 years ago, when bacteriology had not escaped from the Greek Lexicon, when germs and microbes were undreamed of, when pharmacology was a branch of metaphysics; and obstetrics and surgery had neither anesthetics nor antiseptics to aid in their successful work.

I am going to speak most of the time about something else, but I want to say first that I am in the fullest accord with everything that Dr. Moffitt has said. I believe that the day of the proprietary medical college is past, that it no longer

serves any useful purpose whatever, and that the medical college of the present, to say nothing of the future, must be the university medical college, of which distinctive quality is that it belongs to the public. The proprietary institution may be tempted to keep things to itself, to work in the interest of the men who assume its control and pay its bills. The university medical school belongs to the whole public; it is open to everybody who is fitted to make use of its advantages, and its function is to help the whole community in every possible way. The university medical school cannot be merely an appendage to the university—it must be an integral part of the institution. We all recognize that modern medicine is founded on chemistry, bacteriology, physiology and other fundamental conceptions of science, and that it is impossible to make any progress without these conceptions. The clinical instruction must be of the same advanced character. The clinical professor must use the language of the scientific man. He must think and speak in scientific terms. To make his work join on with this elementary work, he must have done this work himself. His explanation of diseases must rest on exact knowledge of the human body, and of the forces which enter into its functions. I think the control of the modern medical school of the university must be essentially with the men who give their time and thought to it, men to whom research and teaching are the breath of life and who are willing to give up the paid practice of medicine for that purpose. It should not rest with those to whom teaching and research are outside interests. It is desirable to have all teachers paid—everyone connected with the work should be paid something; but men who are paid comparatively little and devote a comparatively small time to teaching should not control the affair. The work should be in the hands of men who are putting their whole life and strength into it.

In teaching chemistry, we could make use of the visiting chemists coming in from various establishments to give lectures, these might be very helpful; but it would not be good teaching. To teach chemistry we must have men to whom this is the first work. We are gradually increasing the number of paid men in our medical schools. Of course, pay must be adequate, not only because the men demand the money, but because adequate pay is essential to adequate living. It is getting less and less pleasant to starve to death on a small salary. It is less effective than it used to be, and we all have the right to wish to be effective, to make our lives count something in whatever we do.

The medical college is distinctly useful to the community through its relation to the community, and in its relation to the general practice of medicine. Its laboratories should always be open to medical men, for any purpose of information or investigation. Physicians ought to find in the medical schools men who have ample leisure to investigate difficult questions. The more thoroughly trained a physician is, the more difficult these problems are. Problems in pathology are easy mainly to beginners. It is the work of the university medical school to furnish men with time and willingness to enter into these investigations. In connection with the hospital, which is the clinical laboratory of the medical school, the physician should find well-trained internes capable of helping out with various problems.

A while ago I made a study that interested me and may interest you. It is a study along these lines. Schools of medicine are built up on the treatment of symptoms, not on the treatment of disease. When we come to try to remove causes of disease, we must deal not with symptoms but with facts. In dealing with symptoms we find that

they can be greatly changed by changing the patient's judgment of them. If by symptoms only we know disease, then to persuade the patient that there are no symptoms is to eliminate disease. If we can cure disease by a drug that creates similar symptoms, or by one that creates different ones, we may also cure it by feelings or thoughts which do the same purpose. If there are no symptoms, there is no disease. Hence as symptoms are evanescent, disease is non-existent. To this theory of medicine and healing I gave some years ago the name of Neminism. (Note Dr. Jordan did not submit his paper for publication in the Journal.—Ed.)

Dr. A. A. D'Ancona: The development of medicine and of medical education in California is illustrated by the appearance of President Jordan here to-night. I remember some years ago, when our medical school was merely allied to the University, I met a regent one day—Arthur Rodgers, now dead—who took pride in the statement that the Board of Regents had kept faith with the medical faculty and had never interfered in any medical affairs. It seems that when the medical college was given to the University of California, the Board of Regents adopted resolutions that the faculty should have complete control of its affairs, and Mr. Rodgers meant that faith had been kept because they had kept "hands off." The appearance at this meeting of the President of a great University, acknowledging medicine as a great and essential part of university activities, shows the complete change in the relation of university executives to medicine. Instead of looking upon medicine as Rodgers and his colleagues did, as a thing absolutely apart from the University, the presidents of our universities to-day look upon medicine as in the foreground of university activities.

As the president read the nonsense about Neminism I thought that in the past medicine itself had been just as fantastic; it jumped to conclusions and founded its dogmas largely upon words. In the old days, we were satisfied that if there were inflammation in one eye, it would pass to the other "by sympathy." What were these statements of sympathy and metastasis except Neminism in a different form?

It seems to me that even now, when the universities are planning to take medicine within the fold, they are still only in the transition stage. Perhaps you all think that a medical school which has no practitioners on its teaching staff is impossible, unsound; that it is a Utopian dream to say that the ideal medical school is one that is manned by teachers and investigators, none of whom is a practitioner. I feel that in future that is to be the real medical school. We have never had a medical school of that kind; we have always had schools manned by practitioners; but I venture to prophesy that the ideal medical school of the future will be controlled and conducted absolutely by men who give their lives to teaching and research. Teaching and research must go hand in hand in medicine as in every other field.

I think if we look over the progress of learning in the development of universities, we can see why we still cling to the idea of practitioners being the ideal teachers. Modern learning springs from the Middle Ages, from the time when the books and works of ancient civilization were found. The learning of the age was deficient, in view of the civilization that was unearthed in those records. Ancient art, science and learning were so far in advance of the Middle Ages that it was perfectly natural for the people of those days to worship the past. So for several centuries learning turned its eyes to the past. In the course of time genuine science outstripped the universities, and finally broke into university life, until now it is true that science is becoming predominant. We now look upon the university, not as a place for hermits, but

for workers, for men who want to produce something.

I remember hearing President Jordan once say that science is organized common sense. If men are willing to devote their lives to the pursuit of science, to teaching, with no special thought of income, there is no reason why the pursuit of the science of medicine should not be equally fascinating. You may say that the men will be academic; but what do you mean by academic? The academic man to-day is no longer an intellectual recluse; he is a productive scientist. I remember reading some time ago of a man in ancient Athens, who devoted himself to cutting cones in various directions and studied the relations of the points in the resulting curves. It was a purely intellectual amusement; he did not expect any utilitarian result; but the mathematics of the conic sections to-day is the basis of astronomy, of physics, and of navigation. He was more practical than his contemporaries. The early studies of Pasteur which led him into the so-called germ theory of disease were upon crystals—he studied the deflection of polarized light by tartaric acid crystals. These studies seem frivolous, but the result was far more practical than the work of the so-called practitioners. They were the basis of modern medicine.

If we begin to have medical science followed in this way, to encourage men to study solely for the love of truth, there is no reason why men should not devote their lives to such work. It is not true that men are going to be satisfied solely with money as a return, and men like Pasteur are just as likely to be found in the medical schools as in pure science. So I consider that while the two great universities of this coast have made giant strides in medical teaching, by having a great number of trained scientific men and non-practitioners, and practitioners to a certain extent, they are still in the transitional stage of development, and in the end, from the lowest to the highest of their medical teachers, they will have men who will be wholly within the university and be content to be so.

Dr. R. L. Wilbur: I took it for granted that between Dr. Moffitt and President Jordan all of the essential features would be taken up, and now that Dr. D'Ancona has presented the more idealistic point of view, there is very little left for me to say. It interested me very much to hear that Dr. Moffitt has come to believe that such a department as that of internal medicine must, in the University Medical School, be controlled by individuals who devote all their time to the development of medical teaching and research. I think we are all agreed that in university medical teaching there is now a large part to play and will be for at least a long time, for the clinical man, as Dr. Jordan has called him—that is the man who practices medicine and incidentally teaches. We may reach the stage which Dr. D'Ancona has mentioned, but our generation will continue to find the practitioner a prominent factor in our clinical teaching.

There are a few points Dr. Jordan brought out in the relation of the university medical school to the medical community that will bear elaboration. I consider that one of the functions of the university medical department is to supply a place for the study of complicated cases by the practitioners. You know that the very poor and the very rich get very good medical care, but the so-called "middle class" gets comparatively unsatisfactory attention. They usually want to pay their bills and their capacity to meet the expense of elaborate medical study is often limited. Some of the most interesting work in practice occurs in these cases, and I see no reason why they should not be sent to university hospitals for study and investigation. The feeling that so many have—that clinics are only for the poor—will pass, and many individuals, if properly guided, will submit themselves for study and

investigation by students and teachers in properly controlled institutions. This will offer an opportunity to the sick in the community and to the medical practitioner who can by following his patient into the hospital, get in touch with the rapid development of medical science. It is an opportunity of which the practitioner should avail himself. The medical department should maintain a group of experts in bacteriology and pathology, general diagnosis, etc., who may be called upon for any help that may be required. If there is a tendency for university medical schools to keep apart from the medical profession, medical education will not be advanced as it should be, and in San Francisco it should be the aim of all the men in the profession to keep closely in touch with the medical schools and to send to them cases that are interesting and valuable for instruction, and go themselves to study and follow the care of their patients. University medical departments should no longer be looked upon as were the proprietary schools, but should be considered as belonging to the medical profession as a whole, and as such they should be helped in their work and be asked without reserve to render assistance whenever they are able to do so. I should like to congratulate Dr. Moffitt on the thorough manner in which he has covered the subject and to agree with him in most of the points that he has presented.

Professor F. P. Gay: Of course, the writing has been on the wall for some time in respect to the future of medical teaching. As Flexner has recently said, "The teaching of medicine is no longer a professional, but an educational matter." It is only reasonable that men who teach should devote their entire time to their work in order to be most effective; if two men have equal ability, the man who devotes his entire time gets better results than the man who devotes only a part of his time. That the field of medical education, properly speaking, has only recently come to include the clinical branches is not the fault of the practitioner, but of the university. The practitioners not only have had proper ideals, but furnish opportunities to those who have been able to devote their entire time to medical science; and the zeal with which men who have been trained to practice are willing to undertake teaching is to my mind a most admirable thing. Men trained in clinical branches are undoubtedly coming to take pure academic positions. There are already a few instances of men in this country who hold chairs in the clinical branches of medicine, who have never practiced, but they are still very few. It seems perfectly obvious how the future lies in regard to the clinical men in academic medicine. I do not know that I would go so far as to say that all men should be non-practitioners, but I have been interested in finding from men who still adhere to practice what reasons they allege for the statement that good clinical teachers must be practitioners. I have never heard but one apparently plausible reason, which is that there is a certain contact with the patients which a man can gain only by private practice. Several individuals have made this statement to me. They say that practice helps them to tell their students how to approach people of this sort. But of course no one pretends to take his students to see his private patients. No student can be taught, indeed, how to approach the wealthier class of his patients, and why there should be a distinction of class I do not see. I believe not only that patients in the hospital should be approached in the same manner as private patients, but that eventually many of the classes of patients that are not now found in hospitals will come there as they appreciate the greater advantages of treatment in such institutions.

Dr. W. W. Kerr: I was unfortunately unable to be present when the papers were read, but from the discussion I infer that the old question is up again as to whether clinical men should be de-

barred from their practice and their work entirely limited to that done in the hospital as men on the teaching staff. Personally I can conceive no happier life to anyone interested in medicine than the clinical life spent in a hospital, and freed entirely from private practice. It is ideal. It reminds me of a remark made by Dr. Swan, formerly Professor of Diseases of Children in the University of California, who said: "Don't you wish you had time to study medicine?" I think that is what many of us feel. The question is, however, as to whether it is the best qualification for teaching the men who are going out into the world to practice. That is a matter that has been long under discussion and has been carefully thought out by quite a number, and the objections are not those given by Professor Gay. We feel that in a very large number of cases, when the clinician can afford to give his time, he is inclined to be more or less a faddist; he is inclined to take up some one particular line and follow that to the neglect of other branches; that he is continually imbibing the work which is nearest his heart and teaching that alone to the students, possibly next year contradicting it and giving them the benefit only of the observations he has been carrying along at the bedside. They grow to be rather narrow. On the other hand, we feel that the man who is teacher and at the same time is doing outside work is mixing to a great extent with the men of the profession; he knows the wants of the great mass of the people as they live, not theoretically in the hospital, but in their homes and in their workshops, and knows the difficulties the practitioner will have to contend with among rich or poor; consequently he does not get narrow. Everyone has felt that he would give everything to take up some particular subject, to study it out exclusively, but the practitioner has no time to do this.

To my mind scientific medicine means nothing unless it gives relief to humanity, and the question comes to us: "Are we going to teach these students better by being recluses, living in a hermit's cell, enjoying ourselves without doubt, and looking out and pitying the misfortunes of others; or will we be better able to teach them if we mix daily with our patients, knowing their every-day wants and knowing the difficulties of the practitioner?" It was all so easy when we were in the hospitals, where everything is carried out for us, but it is much more difficult when we come to practice medicine! You do not always know how you are going to practice medicine! I believe thoroughly that there is scientific work in medicine—physiology, pathology, chemistry, and other branches that must be done by the men who give their time exclusively to that work. When it comes to the clinician, it seems to me he is putting into practice those great facts he has learned in the scientific departments. I do not think he is going to be able to do this to the best advantage unless he knows how and where they must be applied. I am not going to the other extreme and say that clinicians should have a large amount of practice to attend to, but the question is, should he be debarred entirely from practice? There is no doubt that the way we have had to work for years giving up our time to the work that has been done, and earning our living, too, has not been ideal even for the clinician. Teaching would be a great deal better if practice could be limited and each of the clinical departments placed under the supervision of a medical director who devoted his entire time to that work. But I believe that the student will get better teaching for the practical work that he is to do, if connected with each school there are certain men who are to a limited extent in active practice of their profession, right out amidst the people.

Dr. Langley Porter: I have little to say except to endorse what Dr. Kerr has said. One point that should be remembered is that the university's debts

are more than the mere turning out of practitioners, no matter how scientific-minded they may be. As a center of scientific thought, not the least of its obligations is to train the community in sociological and preventive medicine; among its debts is research and teaching along these lines.

If all the men engaged in teaching lead an academic life entirely apart from the life of the community, the university must fail in the payment of this debt to the community of which it is a part.

There is no doubt that two classes of teachers are needed: full time heads of departments, and part time clinical teachers. Without the first, organization and academic standards are apt to fall below the best; without the latter, the proper coordination of the university with the social life of its community is impossible.

Dr. D'Arcy Power: The only value of anything I can say is perhaps dependent upon the fact for a long time I have had a reasonable opportunity of watching a large number of men who have been trained in the different medical schools and who have sought to pass our State Board examinations. Thus I know fairly well the ways in which medical education has failed. It is by noting the failures that we can make something like provision for better conditions in the future. It has been my privilege in the last three years to know fairly well the mental makeup and educational equipment of something like 200 men from all kinds of colleges, from the worst to the best. Certain facts have come out so clearly that I am convinced that they are of primary importance.

First: The teaching in the colleges is not correlated, each subject is taught for itself, consequently the graduate fails to correlate his observations and his knowledge, and fundamental reasoning is impossible. I find few able to make some scientific deductions. This is one of the great weaknesses of medical education and must be remedied in teaching the elementary subjects. There should be better correlation of the work so that men shall think in a scientific way.

Second: There is not sufficient training of the power of observation. The men of 50-60 years ago were better trained to observe than the men of to-day, and that is one of the reasons we must have men with the actual experience in practice as teachers. The teacher of senior students must be a man not only trained in the scientific spirit, but able to apply it to training of the observation. He must look for the smaller things and try to interpret them. We need a different system than we have at the present time. Men must be taught to see from the beginning the value of their studies and that is what most of our men do not. Finally, the average practical knowledge of diagnostic technic is disgracefully low.

Dr. Richard C. Cabot, Boston: The question is, I believe, of the rightful relation of an academic clinic to the medical profession and to the general public.

In the first place, what can the clinic do for the doctor? We have had within the last three years at the M. G. H. four courses for graduates, for which there was practically no fee (\$5.00 for each month's work). In these courses the object was to get the general practitioner in close touch with our hospital work; to have him bring cases, specimens, and problems to study. Each course comes once a week during the year, at hours when the physician can come, and we find that they are taken advantage of very quickly by a large number of physicians. We feel that if physicians will come and question us, will put their problems to us, and bring their specimens, it will help us and help them. Demonstrations of methods and new instruments, clinical methods, autopsies, and especially autopsies with a printed record of the case for each physician present, we find of great use. Once a

week we take all the autopsies that have been done, print their histories, physical examination, laboratory examination, in duplicate, and with them in the hands of everyone present we read them aloud and discuss the cases. We do not know what was found at autopsy—we discuss what ought to be found from the facts of the histories. Then the pathologist brings in the organs and throws us down or holds us up, as the case may be. The practitioner gets over any exaggerated respect he may have for us! The clinical exercises are also essential, and the demonstrations of methods and operative exercises are useful, although surgical operations furnish less of value because, as you know, if one is to learn from an operation it is necessary to be at the side of the operator and to see the wound. I do not feel that one can do very much in teaching surgery by surgical demonstrations. As time goes on we can develop our usefulness further until physicians will get into the habit of bringing to the clinic selected cases, and sometimes case histories or particular points about cases. We are there to solve problems when we can, and we want those problems from the general practitioner.

What can the medical public do for the clinic? It can furnish cases, histories, specimens. The hospital depends upon the medical public for such co-operation. It is for the good of both hospital doctor and outside physician to furnish such material. We welcome physicians at the bedside, to question us, to get all they can from the cases. This is what every university clinic should and will do.

What will the university clinic do for the general public? It will furnish a standard of proper medical practice. It can furnish that because of its laboratories, its organization, its co-operation among specialists. It wants to put these methods and standardizations at the service of the public. I have done a busy general practice in my time, and I know how the busy practitioner is handicapped. We can furnish the public with an example of team work in medicine.

The public has begun to find out that modern diagnosis and treatment mean team work. If a man has rheumatism, he is sent to the G. U. man, the naso-pharynx and antrum are examined, and the orthopedist sees him before we know what the diagnosis is. Even if a man is wealthy he cannot afford this.

Medical services are getting too expensive. We must meet that by banding ourselves in groups so that the patients can get a group diagnosis for a moderate fee. At the Mayos they have a group of specialties, and that is what we do at the hospital. I believe that the public is beginning to appreciate that team work is just as important in medical examinations as in surgical operations, because laboratory examinations and special examinations are now a part of the general diagnosis. In that way I believe we are going to command the respectful regard of the public—its support, and the readiness of the people to come from any distance. I do not think any university clinic can be supported unless patients come from a long distance. To the University of Michigan clinic (Ann Arbor), people come from all over the State of Michigan; to Johns Hopkins, from all over the country south of Mason and Dixon's line. That is what the university clinic ought to be, and will be by furnishing a standard of medical service, using all the opportunities for good work which the hospitals furnish, and keeping up to date in every respect.

I would be glad to answer any questions if there are any.

Dr. Alvarez: I think we would all like to hear a little about the social side of the work in which Dr. Cabot is so interested.

Dr. Cabot: I feel that the university clinic can set an example and standards in this respect as

well as in others. I think we all know that medicine is mixed up with every kind of social problem. This is especially true among the poor, but not only among the poor. You start to talk to a neurasthenic and you find you will have to learn many other arts besides medicine. In dealing with the poor in dispensary clinics you spend the best part of your time and skill in making the diagnosis, and your treatment does not amount to shucks. In New York and other places, patients are thoroughly studied in the outpatient department and carefully diagnosed, but no treatment that can match the diagnosis; and I have seen men discouraged and slipping into slipshod methods. I believe that any of us physicians will put out efforts if we believe that we really accomplish anything thereby. We know what we ought to do, but cannot always do it. We know a man has tuberculosis and needs food which he cannot provide. We give a man a tonic for his appetite because he is not eating enough and we find that the only trouble is that the tonic makes more appetite for the food he has not got. We have the important problem of the unmarried pregnant girl, who comes to the hospital and finds out the most terrible fact that can be known to woman, which may lead her through abortion and down to prostitution. Dr. Brown told me of a case of his at the Polyclinic with gall stones. He could not persuade the patient to be operated. If he had had a social worker, she could follow that case up and perhaps persuade him. If some totally dispassionate third party can persuade the patient to do what he ought to do, we should then see our diagnostic efforts not wholly wasted. We start in to give the patient treatment, and we run up against a stone wall because of financial conditions. The social worker is a trained expert in dealing with misfortune. There is nothing that will give to academic clinic a better standing in the community, and render the hospitals more popular, than the assistance of social workers in the clinic. The patient gets not only what he asks for, but a great deal more. They go complaining of stomach trouble, which is merely a manifestation of home troubles, overwork, need of vacations, etc., and what they want is relief from these problems, but they do not know this. The drug won't do it in a vast majority of cases. When they find that somebody takes a human interest in all their problems, it builds up the clinic and teaches the doctor a lot of things. I have learned fully as much from the social worker as from medical teachers. I never before appreciated what an amount of good there is in the community—especially among the poor. It makes it more interesting to practice medicine, not only because of the good results, but because we see so much more good in human nature.

TREATMENT OF SPIRAL FRACTURES OF THE TIBIA.*

By CHARLES G. LEVISON, M. D., San Francisco.

The object of this paper is to lay down specific rules for the treatment of spiral fractures of the lower third of the tibia. The subject is of great importance, for the condition is one of the most difficult to treat in the category of fractures.

In order to dispose of one phase of the situation I will admit that most surgeons believe that all fractures that can be treated conservatively should be so treated, and that good alignment with indifferent approximation that will result in restoration of function is all that can be expected. This in

* Read before the California Academy of Medicine, September 2, 1912.

my opinion should obtain with individuals who are not wage earners, for in this class, as has been frequently pointed out, the return of function to a limb where the bone has healed by secondary union is much delayed, while on the other hand when the fragments have been perfectly approximated the bone unites by primary intention without the formation of callus with the consequent shortening of the period of incapacity.

When the bone unites with the formation of a large mass of callus, restoration of the function of the muscles is slow, and as the callus exercises pressure upon the neighboring structures, there are many phases of this slow convalescence that should not be lost sight of.

Another point in the pathology of fractures that cannot be emphasized too frequently is that when fractures are set immediately after the injury, it is often very easy to replace the fragments, while if the manipulations are carried out several days later approximation is often impossible. This is not due to the natural contractility of the muscles but is due to the blood that is coagulated in the injured muscle which then remains contracted. It is important to recognize this because of its bearing upon the treatment.

When operation is performed early before the muscle has become hardened on account of the blood coagulated within, only a small incision is necessary as the fragments are still very movable, so that it is much simpler than when operation is performed at a time when the structures are indurated and more difficult to approximate.

Spiral fractures of the tibia are generally operated at a late date because of the usual futile attempts that have been previously made. It requires some experience before the difficulties in connection with its reduction are appreciated.

Satisfactory approximation even after a tenotomy of the tendo Achilles is frequently not obtained and a great amount of callus will form between the fragments and if these are not too widely separated union may take place; if the fragments are far apart despite the fact that a large amount of callus is thrown out, pseudo-arthritis may result. Even if this is not the case and union takes place there is a great amount of lymph stasis in the muscle which promises a long and tedious convalescence. While this may be satisfying enough to the individual who is not dependent upon his daily wages yet to the man whose family depends upon him for support, it is a very important consideration.

Four days, in my experience, should be the time limit and then if reduction is not satisfactory operation is indicated. The operation is very difficult on account of the position of the fragments. The lower fragment is jammed backwards under the upper fragment and it is held down by indurated and contracted muscles and tissues. The upper fragment is seemingly pushed anteriorly on account of the depressed position of the lower fragment.

There is a considerable amount of trauma pro-

duced before the lower fragment can be mobilized and brought into apposition. Each time that I have operated upon a fracture of this kind I have determined never to resort to operation again on account of the difficulties experienced, so that I would always advocate conservative means if possible. On the other hand if surgical intervention is resorted to, it should be employed shortly after the fracture has been produced and before the changes above described have resulted; if this is done a small incision with a moderate amount of manipulation will permit easier reduction.

This is the only fracture in my opinion in which the Esmarch bandage should be employed, for here the fingers should not be introduced into the wound as the sharp spine of the ends of the fractured bones makes puncture of the glove easy.

In compound spiral fractures of the tibia with depression of the lower fragment the injury to the skin is produced by the sharp point of the upper fragment; this condition can only be corrected if the lower fragment is brought into position so that healing takes place. As compound fractures preclude surgical intervention my practice is to chisel off the lower end of the protruding upper fragment as soon as the danger of infection has passed and the skin should be united by sutures so that if necessary, operation can be performed as soon as the skin has healed; if this is not done the skin is not inclined to heal on account of the sharp projection of bone, a condition materially complicating the result.

Summary: Spiral fractures of the tibia should be treated conservatively and if satisfactory approximation after tenotomy of the tendo Achilles has not been obtained after attempts have been made and controlled by the X-ray over a period of four days, then surgical intervention should be resorted to; four days should be the limit for after this time operation becomes more difficult.

2. Operation should be performed with "Esmarch" which permits it to be done by instruments alone, for in this particular condition the gloved hands should not be introduced on account of the sharpened ends of the bone which may perforate the rubber glove, thereby increasing the danger of infection.

3. In compound spiral fractures of the tibia the lower end of the upper fragment should be chiseled off as soon as the danger of infection has passed and the skin united, thereby converting the compound fracture into a simple fracture and materially shortening the period of convalescence.

4. In the laboring man no attempt should be made to treat this fracture without operation.

Discussion.

Dr. S. J. Hunkin: While Dr. Levison in my opinion has in the main made axiomatic statements, there are a few things in his paper with which I would not agree. For instance, I would not operate under an Esmarch, for I think you favor infection by so doing. I think that anything that makes for a great deal of bleeding, and clotting, afterwards makes for infection. Again, personally, I would rather get better approximation, and run the risk of tearing my gloves, particularly if my hand was clean and the gloves were not

filled with dirt, as they insist upon filling them in most operating rooms these days, for talcum powder to me is dirt even when cooked, and is not well taken care of by bone. Any piece of bone which I can not get into alignment, I cut off, whether on the upper, lower or middle part. I do not cut the Achilles tendon. Personally, I think it is bad surgery to cut any tendon unnecessarily, or to cut anything we do not replace, and I think fractures can always be brought into apposition just as well without, as with tenotomies. I agree with Dr. Levison, as I said at a meeting of another medical society, that the better the approximation, the less callus you get and the quicker the healing takes place, and the more still the bone is kept during the proper period, the quicker the union and better the result.

Dr. Levison: Concerning Dr. Hunkins' statement about the Esmarch bandage: In a paper that I presented two years ago I brought out the point that I did not think that under ordinary circumstances that the Esmarch was indicated; on the contrary I think it does harm, but just in this particular operation where the bone is so depressed and where alignment is difficult to obtain, in my opinion the Esmarch is indicated but it is the only fracture where it should be employed.

As far as tenotomy of the tendo Achilles is concerned I agree with Dr. Hunkin that I have never succeeded in accomplishing anything as a consequence of the tenotomy. I only advocate its employment because it has been suggested by others and not on account of any particular result that I have seen.

A PHYSICIAN'S VACATION.

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

It was urged recently in an editorial in this JOURNAL that every physician should take a holiday, else he might become a "stale" doctor: A stale medical man in these aseptic and bustling times would be a grave misfortune, especially to the "stale" one. Shortly before the appearance of the aforesaid editorial I, with my wife and daughter, went on a health-seeking expedition into the Sierra Nevadas, and behold some of the experiences that we underwent there.

We outfitted in Three Rivers, where we arrived on the noon of a very hot day after a long railroad, trolley and stage ride. We were advised to go up the Kaweah to Hockett Meadows and down through the National Forest to our point of departure. We had intended going into the Kings River Canyon, but were told that we would get good fishing and fine scenery along the Kaweah. We got the scenery but not the fishing.

We started with a bang. The store at Three Rivers has a stoop in front of it, the height of a wagon bottom, for the easy transference of goods. I noticed as I entered that there were a number of iron rods on this stoop, and made a mental comment that some of them might fall off. Shortly afterwards I heard a racket of falling iron and knew that the expected had come. The stage horses nearly ran away, and a moment afterwards

our cook stepped into the store and said our mules had bolted, and one of them, with a box of eggs insecurely fastened on his pack, was peddling these up the road. The mule was gathered up, but not the eggs. Finally, as the afternoon was wearing late, our party, consisting of a packer, a cook, nine pack and saddle animals and our three selves, moved out with great expectations along a very dusty road. Alphonse Daudet in his delightful novels of Southern France continually remarks that sunshine, dust and the chirping of crickets are inseparable. If you will have sunshine he insists you must necessarily have dust, and the dust of California is of that fine impalpable nature that rises up in a golden cloud, and enters every little pore and crevice. I do not know a finer sight than a slowly moving ox team with their swaying gait, powerfully bent to a great load of logs, hauling it along a deep dusty road in the giant redwoods. The dust gives an indistinctness that accentuates the powerful lines of the picture. I do not think that our mules and pack animals developed quite such an impressive scene, but we made progress and finally arrived at a camping place beside a running stream. It was suggested to throw the tent across the stream in such a way as to make a bathing house. A bath in running water, just cool enough to be bracing, was just the proper thing to remove the dust and perspiration of the hot day, and the ache from the limbs unaccustomed to riding. Having a cook to prepare our meals was also a luxury. This cook made flapjacks, excellent ones, and these flap-jacks together with our appetite made a fine combination. After our meal and bath we turned in under the open sky as is the custom in California. One of the agonies of camping is sleeping on the hard ground. It is impossible to do away with all inequalities, and some stone or other is sure to insert itself between your ribs, and before morning you feel that the whole earth is coming up through your body. We had anticipated this, and had provided ourselves with air mattresses. These mattresses were the final and culminating point in our luxuries; like the cream to a strawberry. In getting them it is necessary to see that they have matted sides, else they are as hard to stay on as a Swiss bed.

There are very few sights in the world equal to awakening in the early morning under the blue sky. The retina has had its night's rest, and is especially sensitive, and it is an unutterable joy to look up into the deep blue vault. It is the time of day to appreciate what that most intellectual of peoples, the Greeks, meant when they made Pallas Athena the goddess of the upper ethereal air, and called the blue sky the eye of the goddess. The Greeks seem to have been more impressed with the beauties of nature than any other ancient people, and this is one of their finest touches. The next night we camped on a wooded platform overlooking the South Fork of the Kaweah. Myself and the packer went fishing, but as I was a tenderfoot, and as the stream was very rocky and my

knees were nearly twisted asunder by the unusual exercise of riding, I did not go very far up stream. It was possibly because of this and of my lack of art in fishing that I had no success, for the part of the stream whipped by me was in the neighborhood of a cavalry camp, and these young fellows had probably caught all there were to be had. The packer went further down stream and had better luck. This mess was the first and last caught during the whole trip.

The cavalymen at this station were mostly boys, nice looking young fellows, and well equipped. The equipment and the horses are a standing credit to our government. The politeness and eagerness of the men to do everything they could for us was a trait common with them and with the other government employees we found in the park. The sergeant in charge was particularly proud of his arms, a good trait in a soldier, and he took great pains in showing the rifles, and anticipated great pleasure in the new Colt's Automatic .45 pistol they are shortly to receive. This large calibered pistol is an excellent change from the smaller calibered one. I first learned to appreciate a large calibered small arm when house surgeon in the old Chamber St. Hospital in New York. I there saw clearly that a small calibered arm was incapable of stopping a man suddenly. In close range work the stopping or stunning of a man is of the very first importance, and mass has more to do with bringing about this result than velocity.

One of the enjoyments of a mountain trip of this kind is the beautiful sweet water of the springs and rivers. We are accustomed to call such water pure. It is anything but pure, and this is the very point. Pure water is not alone disagreeable, but unhealthful because of osmosis. In order to be healthful and agreeable, water has to be impure enough to approach more the osmotic index of the body fluids than distilled or rain water does. It is now well known that pure water thrown into the circulation is a violent poison. One of the springs in Gastein is called the "Giftbrunnen," or poison spring, and on analysis it is found to be absolutely pure water. Natural ice, being pure, is harsher to the mucous membranes of the mouth and stomach than the more quickly frozen, somewhat salty artificial ice. I remember as a boy how it pained my lips and tongue to suck such icicles. The water of mountain streams contains many salts, and the slimes from the water dwelling animals and plants. It has still another quality not possessed by distilled water. By tumbling over the rocks it is well mixed with oxygen that gives it an agreeable liveliness. Such water is very healthful, and it is well that it is so, considering the huge quantities drunk by an office man on going green into the mountains. This elimination of water in summer in this region is for the most part insensible, because the clear, dry, atmosphere favors evaporation from the skin and from the lungs. In fact I look upon skin and lung elimination as among the chief recommendations of the Sierra Nevadas as a health trip. As water is the medium of chemic exchange in the body, this active absorption and elimination of water must

most beneficially accelerate the chemistry of the tissue changes. The old meaning of the word catharsis was purification, and Aristotle used it in this sense even in reference to purification of the mind. This diaphoretic and respiratory catharsis is a most efficient purifier and has the additional advantage of relieving the other emunctories.

Among all the ministering angels that surround us cooks are the most curious tempered, and ours was no exception to the rule. I once heard a man undertake to prove there is a back door to Hell. On being asked to produce his reason he said, "How else could our cook have escaped?" The incident that finally separated our cook from our happy family was the stretch from Hockett's Meadow into the Little Kern Valley. The usual route between Hockett's Meadow and Mineral King is uninteresting, and we were advised, for the sake of the scenery, to go by way of the Little Kern Valley and Farewell Gap. The scenery justified for us the discomfort, and the view from the summit, on the one hand down the Little Kern, and on the other toward Mineral King is one of the finest, but the cook did not see it in that light, and it was a case of: "You tak' the low road, and I'll tak' the high road."

We had an experience before reaching Mineral King very instructive to one camping in these mountains. It is convenient and agreeable to camp beside a stream, and besides in the bottom of the canyons there are so many cozy looking nooks, that are not so cozy as they appear. In the evening and in the fore part of the night these places are often comfortably warm, but toward morning the cold air from the snow-clad mountains pours down the steep canyons like water in a trough, and chills to the bone. This peculiarity of the Sierra Nevadas must be reckoned with, and therefore the correct thing is to camp up on the side hill or on the promontories. I knew this, but the place in question looked so inviting, and was so handy to the water that we determined to pitch or rather inflate our beds there. I awakened during the night with my feet as cold as stone, and my left knee as painful as a toothache. I mentioned this to the packer next morning, and he said he noticed we went down there, but did not say anything about it. This is characteristic of the mountaineer; unless under very special circumstances he will venture no advice.

It was in this neighborhood in crossing Farewell Gap, one of the highest points of our journey, that I noticed the evolution of a familiar effect of light on the skin.

Light has a powerful effect on the skin in producing sunburn, or even true eczema solare, and also a curious disease called seborrheic keratosis. Seborrhea of the skin is a predisposing, but not essential cause of this latter affection. Shortly after crossing Farewell Gap I noticed on the back of my hands, which, of course, had begun to tan, a few little, red, freckle-sized lesions. These little red patches indicated groups of epithelial cells that were more impressionable to light than those of the rest of the back of the hand. On observing

this I was careful to wear gloves, and the little red patches gradually died down and became pigmented, looking like ordinary freckles. If the strong light should continue, however, and if the skin is markedly seborrheic, these patches may not return to the normal, but may persist in being more actively desquamating, and furthermore the desquamating scales tend to adhere to one another, forming corneous masses. These masses are harder and more adherent on the back of the hand than on the face, but wherever they occur they have a tendency to degenerate into epithelioma; this degenerative tendency is more marked on the face than on the hands.

The day before this, while in Bullion Camp on the Little Kern, two men, each carrying a rifle, strolled up the trail. One of them wore gloves, the other had a well developed, roughened, chronic, sunlight erythema of the back of the hands, that was well thrown into relief as he held the rifle in the natural strong grip of the hunter, for they were real mountaineers and old friends of the packer. The detrimental effect of light in his case had gone very far, and probably had affected not alone the superficial epithelium, but even the connective tissue portion of the skin where it causes severe degeneration, especially of the elastic fibres that under its influence disappear. The light of the high mountains, because of being very rich in actinic rays, is much more active in causing this degeneration than that of the sea level. As the light travels down through the atmosphere the short, chemic, actinic rays are much more rapidly absorbed than the longer red rays of the heat end of the spectrum. This richness in actinic rays of light at high altitudes is the reason why snow burn in the mountains is so much more severe than at lower levels.

Sunlight has still another important effect on the skin. It stimulates its pigment-forming function. This great function is frequently undervalued and looked upon as a mere effort on the part of the skin to protect the cells from the detrimental effects of the sun's rays. The pigment certainly does protect the cells and especially their nucleus, but it may have still another great function. The pigment of the skin is almost entirely formed in the stratum germinativum, and as the cells of this layer advance in their natural evolution toward the surface, they lose their pigment, even before they reach the stratum granulosum, and they have still a considerable distance to go before they are cast off as the scurf layer. That is to say, the pigment is formed in the lowermost, youngest, epithelial cells of the skin where the cells are at the highest stage of secretory effectiveness, and is lost long before these cells have completed their life cycle. Is the pigment, therefore, an internal secretion of the skin gland, and if so, where does this secretion go after leaving the skin? Is it absorbed, and does it go to form hemoglobin? And if so is the formation of blood pigment like the formation of chlorophyll dependent upon the action of sunlight, as is maintained by Driesing?

A friend of mine, Fairfax Whelan, stoutly main-

tains that the only reason why the Aryans have surpassed the other races is that they were originally a pastoral people, going with their herds and flocks to the highlands in summer, and returning to the lowlands in winter, and therefore getting the wide range of physiologic experiences that difference in altitude and therefore in air pressure grants. It would be additionally interesting if it is found that the richness of the mountain sunshine in actinic rays, by acting on the pigment-forming function, and therefore on the hemoglobin, also tends toward physiological perfection. If this surmise that the pigment of the blood arises in the pigment of the skin, and that it represents a sort of concrete sunshine should be true, then the skin will take a loftier place in the hierarchy of organs than it has heretofore occupied. Physicians tend to regard the skin as a coat or envelope to percuss or palpate through in an effort to guess at what is going on in what are considered the nobler organs, and surgeons esteem it as a sort of leathery case to puncture or cut through in order to reach the juicier deposits beneath. It may, however, transpire that the despised skin, that is seldom looked at by the anatomist, and that is dismissed by the physiologist at the end of the term together with the benediction, may be among the noblest of all the organs, and may be intimately connected with the formation of hemoglobin, and therefore with the assimilation of oxygen, that most important of all the functions of animal life.

Finally, we come to a consideration of the mules that were such a help to us on our trip. I learned much from those mules. In fact I do not see how a man can handle patients or practice medicine successfully without a knowledge of mules, for the mule and the patient have much in common. The mule is often narrow mindedly insistent on his own way of doing things, and so often are patients. Mules kick, and so do patients. You cinch a mule, and it is sometimes necessary to apply that process to a patient. Even the word "cinch" has a long and honorable history in medicine. Cinch is from the Spanish cincher, which is the Latin cingulum, a girdle. Cingulum is the name of the monk's girdle, emblematic of the encircling church. And from the Latin cingulum we get the medical word "shingles," or the girdle disease, as applied to herpes zoster. There may be a mystic meaning in the monastic word cingulum, but there is no mysticism about the word cinch as applied to a mule's cinch strap, or of shingles as applied to herpes zoster. Both of them are concrete realities, and occasionally also we meet with the real thing in dealing with a patient.

Many of the truly greatest, most contemplative and wisest of the human kind have become intimately acquainted with the jackass tribe, as for instance Sancho Panza, and also Robert Louis Stevenson, as related in his *Travels on a Donkey*. Occasionally in dealing with a patient it is necessary to be as firm as a cinch strap, as spiritually wise and kind as Robert Louis Stevenson, and as worldly wise and free from illusions as Sancho Panza.

ACUTE POLIOMYELITIS IN CALIFORNIA.

By F. F. GUNDRUM, M. D., Sacramento.

In a previous paper¹ it was shown that acute poliomyelitis has been occurring in California for many years, both as sporadic cases and in occasional epidemics. These epidemics have been usually small, but within the past few years the numbers attacked have greatly increased. No further authentic accounts have been obtained of past outbreaks except one group of two cases near Bodega Bay, Marin County, in April, 1888. It is the purpose of this communication to record the history of poliomyelitis in California during the past three years. It has not been possible, for various reasons, to obtain completed records of all cases reported by health officers, and on this account only part of the cases are available for analysis.

The reports at the office of the State Board of Health for the years 1910, 1911, 1912 were collected and the data tabulated as follows:

1. Portion of the year when most cases occurred.

2. Sex.

3. Age. i. e., over or under 8 years. (Arbitrarily chosen upon a former occasion.)

4. Exposure. (Any direct or reasonably close indirect contact with a known case.)

5. Onset. There has been reported in almost all cases types of onset which can comparatively easily be grouped into one of two divisions.

1. The so-called classical or gastro-intestinal type in which the intestinal symptoms such as nausea, vomiting, constipation, diarrhea, etc., seem to predominate clinically until the appearance of the paralysis.

2. The meningeal type where retraction of the head and other phenomena seem to point toward some meningeal irritation. A few reports showed the onset to have been so mild as almost or quite to have escaped notice. Just why those two above mentioned types of onset should have so greatly outnumbered other well recognized though less frequent ones is difficult to explain. It may not be impossible, that the blank forms sent out lent themselves too facily to the remembering and recording of some symptoms and to the forgetting of others.² At any rate, practically all, without any

Symptoms of Acute Stage.

*Fever: High. Moderate. Slight. None.
Headache: Severe. Moderate. Slight. None.
Constipation. Diarrhoea. Vomiting. Sore throat.
Pain: Distribution.
Tenderness: Distribution.
Retraction of head: Restlessness. Drowsiness.

apparent distortion, can be brought into one of these two groups and this accordingly has been done.

6. Paralysis: The distribution rather roughly grouped as to whether affecting upper or lower extremities, or respiratory muscles. The exact muscles paralyzed and the extent, etc., of the palsy is of chief interest to the orthopedist whose ingenuity is called upon later to substitute or restore as much as he can.

7. Result: All patients having no paralysis at all or none remaining at the time of filling out

blanks were classed as abortive. The other groups recorded under this heading are self-explanatory.

8. Contacts: Persons who were in close association with sufferers from the disease during the acute stages. On account of the greater frequency in children and therefore assumed greater susceptibility, contacts were divided according to age, those under 18 being classified as children.

9. Outline maps of the state showing localities in which poliomyelitis has occurred during each of the past three years.

1910.

Total cases reported.....	139
Total deaths reported.....	9
Percentage mortality.....	6
Total cases available for analysis.....	120
(1) Maximum of Cases:	
May 1st to September 1st.....	71%
(2) Sex. Males.....	76 or 63%
Females.....	44 or 37%
(3) Age. Under 8 years.....	85 or 71%
(4) Exposure.....	5 or 4.1%
(5) Onset. Classical.....	80 or 67%
Meningeal.....	40 or 33%
(6) Paralysis:	
Upper extremities.....	Cases 27
Lower extremities.....	Cases 93
Respiration.....	Cases 7
(7) Result:	
Paralyzed.....	113
Dead.....	7
(8) Contacts:	
Adults.....	113
Children.....	113
Percentage of secondary cases known to contacts:	
Adults.....	0%
Children.....	4.4%

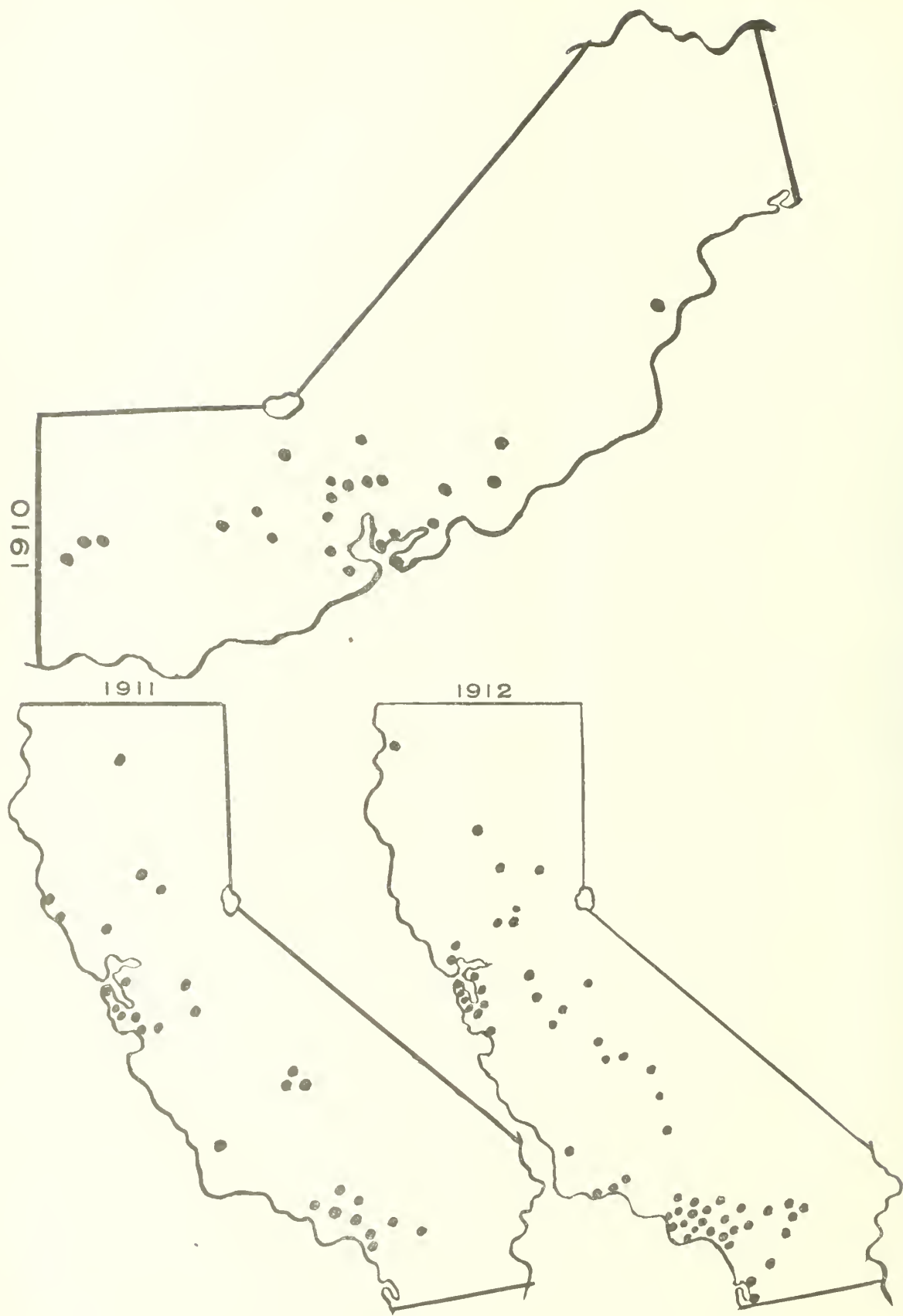
1911.

Total cases reported.....	55
Total deaths.....	13
Mortality rate.....	24%
Cases available for analysis.....	29
(1) Maximum of cases:	
Oct. 31st to Dec. 31st.....	88%
(2) Sex. Males.....	10 or 34%
Females.....	17 or 59%
Sex not recorded.....	2 or 7%
(3) Age. Under 8 years.....	21 or 72%
(4) Exposure—1 case or.....	3.4%
(5) Onset. Classical.....	8
Meningeal.....	6
Not recorded.....	15
(6) Paralysis:	
Upper extremities.....	2
Lower extremities.....	5
Respiration.....	4
Face.....	2
Not recorded.....	16
(7) Result:	
Paralyzed.....	7
Abortive.....	3
Dead.....	13
Not recorded.....	4
(8) Contacts:	
Adults.....	22
Children.....	15
Proportion of known secondary cases to known contacts:	
Adults.....	0%
Children.....	3.4%

The records of this year are so imperfect as to make percentage computations almost valueless.

1912.

Total cases reported.....	531
Total deaths.....	129
Mortality rate.....	24%
Cases available for study.....	354



Acute Poliomyelitis in California.

(1) Maximum incidence:		
June 1st to Oct. 21st.....	259	or 80%
(2) Sex. Males.....	190	or 54%
Females.....	159	or 44%
(3) Age. Under 8 years.....	277	or 78%
(4) Exposed:		
Yes.....	43	or 12%
No.....	227	or 64%
Not recorded.....	84	or 23%
(5) Onset:		
Classical.....	151	or 43%
Meningeal.....	108	or 30%
Not recorded.....	95	or 27%
(6) Paralysis:		
Upper extremities.....	61	or 18%
Lower extremities.....	132	or 38%
Respiration.....	68	or 20%
Abortive.....	41	or 12%
Not recorded.....	42	or 12%
(7) Result:		
Paralyzed.....	172	or 49%
Dead.....	129	or 24%
Abortive.....	51	or 14%
(8) Contacts:		
Adults.....	601	
Children.....	401	
Proportion of known secondary cases to con-		
tacts.		
Adults.....	1.6%	
Children.....	8%	

The proportion of known exposures to known cases in children and adults correspond, however, more closely to the cases reported than these figures would seem to indicate, i. e., 78% of all cases were under 8 years of age: of 43 cases of known exposure, 32 or 77% were children. The greater per cent. of known exposure in children may also be due to the relatively more easily obtained knowledge of contacts. There is a definitely greater percentage of known secondary cases among children shown by the data of all three years. This fact favors assumption of a greater susceptibility to the disease among children.

Total for Three Years.

Total cases reported.....	706	
Total deaths.....	151	
Mortality rate.....	21%	
Cases available for analysis.....	503	
(1) Maximum Incidence:		
May 1st to Oct. 1st.....	72%	
(2) Sex. Males.....	276	or 53%
Females.....	220	or 44%
Not recorded.....	7	
(3) Age. Under 8 years.....	363	or 72%
(4) Exposure.....	49	or 9.7%
(5) Onset:		
Meningeal.....	154	or 30%
Classical.....	239	or 47%
Not recorded.....	111	
(6) Paralysis:		
Upper extremities.....	189	or 37%
Lower extremities.....	230	or 43%
Respiration.....	72	or 14%
(7) Result:		
Paralyzed.....	292	or 56%
Dead.....	149	or 26%
Abortive.....	44	or 9%
Not recorded.....	46	or 9%
(8) Contacts:		
Adults.....	736	
Children.....	539	
Proportion of known secondary cases to		
known contacts:		
Adults (over 18).....	1.3%	
Children (under 18).....	7.2%	

During 1912, there appeared papers,^{2,3} reporting successful transmission of poliomyelitis through the

agency of the biting fly, *Stomoxys Calcitrans*. Following this, special efforts were made throughout the last few months of the year to record, if possible, the presence or absence of this fly in the immediate neighborhood of individuals ill with poliomyelitis. The majority of these observations were made in the valley of the Sacramento river, a valley of farms and dairies having a large population of domestic animals. In every case it was a matter of comparative ease to find numerous specimens of stomoxys.

CONCLUSIONS.

1. Poliomyelitis is more prevalent in summer but is by no means confined to hot weather, instances of this disease having occurred at all seasons.

2. Children are more apt to contract the disease after known exposure than adults.

3. Exposure could be demonstrated in only one case in ten.

4. The onset is rather more apt to present gastro-intestinal symptoms than meningeal.

5. The spreading of the virus through a community is in the majority of cases untraced. This distribution can be explained only through the assumption of unsuspected carriers, probably human, possibly insect or animal.

In closing, I wish to express my indebtedness to Dr. W. F. Snow, Secretary of the State Board of Health, for access to the records and for constant interest in following up the disease in California.

1 Gundrum, Jour. A. M. Med. Assn., Jan. 27, 1912. Vol. LVIII, pp. 254-55.

2 Rosenau, M. J. XVth International Congress of Hygiene and Demography, September 26th, 1912.

3 Anderson, J. F. Public Health Reports; U. S. P. H. Service; Vol. XXVII, No. 41, p. 1733, Oct. 25th, 1912.

"IMPRESSIONS."*

By H. J. KREUTZMANN, M. D., San Francisco.

The practice of medicine is certainly interesting and fascinating for many reasons; to myself the fact that we in our daily work can make the most interesting scientific observations and researches, has always been especially attractive.

On the other side, no work of any kind taxes and racks the nerves of a person more than the practice of medicine. It is not only the great responsibility of our decisions, often involving life and death, health and happiness, which makes our position difficult; but what has always appealed most to me is the fact that in our daily work we are made not merely witnesses, but active participants, in the greatest tragedies of life. When priest or undertaker steps in, death has done its work, they stand before an accomplished fact; but we physicians are right in the battle line for life; we, if we have any heart at all, cannot entirely escape the anxiety, worry, disappointment and despair so often accompanying the struggle for life.

At times the measure of our endurance becomes full, and then the only thing for us to do is to

*Read before the San Francisco Polyclinic Society, April, 1913.

leave practice and patients alone for a while. I must confess that about a year ago I found myself in such a position. I went away. I could not go near a hospital for quite a while, did not want to see clinics or doctors. We went through Canada, saw Montreal, New York, crossed the Atlantic, saw Paris at the best time of the year, its beautiful surroundings; traveled through Belgium and Holland into Germany. I kept away from hospitals, looked only at things beautiful in nature and art, at the great works of man. In this way I took a refreshing bath, freeing myself of the refuse of daily toil, and gradually the interest in medicine, the desire to see something medical returned to me.

After a few months I began to visit clinics and hospitals; I did not run from one man to another, from one clinic to another; my principle was rather: *non multa, sed multum!* I visited some of the great German gynecologists, personally known to me; remained for weeks at a time at the same place—Berlin, Munich, Frankfurt, Heidelberg; I became acquainted with the assistants, and in daily visits and talks I learned and saw a few things that were quite interesting to me.

What impressed me most in all these interviews, lectures and observations, was the great tendency to conservatism, as practiced and taught by the foremost leaders in gynecology and obstetrics: conservatism as manifested by the application of non-surgical methods of treatment of different affections peculiar to women.* Notably in three things this conservatism is conspicuous:

1. In the treatment of inflammatory affections of the uterine appendages;
2. In the application of Roentgen-rays in gynecology;
3. In the treatment of placenta previa.

With the wonderful advancement of surgery under anti- and aseptic measures, gynecology was not lagging behind; occasionally an attempt was made to save some of the affections of female genital organs to non-surgical treatment, but I do not think I misrepresent conditions when I say that as a whole gynecology, and even, in the hands of a few, obstetrics, has become merely an appendix to general surgery.

This is especially true of the inflammatory affections of the Fallopian tubes and the ovaries. Since Lawson Tait let loose his "cut her open," since Beatty and Hegar made an assault upon ovaries, the onslaught upon these organs all over the world for a few decades has been tremendous; and thousands and ten thousands of women lost their organs of reproduction or part of them; some incidentally also their lives. Undoubtedly what we know now about the affections and diseases of these organs—and the knowledge is wonderful—was all gained in consequence of this surgical therapy.

Enough time has now passed, enough cases have been observed, especially as far as later and final effects are concerned; the initial enthusiasm for a new and brilliant method of treatment has subsided, cooler judgment prevails, and the result is

that inflammatory affections of tubes and ovaries are more and more taken away from surgical treatment and restored to conservative, non-surgical methods. This is entirely in accordance with the general trend of medicine: inflamed affections of joints, for instance, are not as a matter of routine treated with amputations or resections but with conservative methods. The same prevails with the tubes and ovaries. Every gynecological clinic that I saw is equipped with a regular balneotherapeutic department, to apply water, heat, massage in different forms and ways.

Certainly there remain as yet many cases of inflamed, decayed tubes and ovaries, real pus tubes, adherent adnexa, etc., that have to be operated. But the indiscriminate rush with the knife for those organs, the many silly operations for slight pathologic, almost physiologic changes in the ovaries (small cysts) are condemned. The general state of health, the condition of the nervous system, are carefully looked over and accordingly treated. A better understanding and appreciation of the relation between the affections of generative organs of women and the nervous system exists, and this in turn renders gynecologists careful in recommending and performing operations.

Roentgen-rays are employed at many clinics; the therapy is in the state of development as yet, but undoubtedly it is to remain; the best method of application, its scope and indication are not worked out yet, but free and frequent discussions and papers show the great interest taken in this form of treatment; and it is rather remarkable to hear the most wonderful experts in operative technic talk quite enthusiastically on Roentgen therapy in lieu of operations. Professor Krönig of Freiburg, one of the most accomplished and daring operators, made the rather startling statement that for uterine fibroids Roentgen-rays would replace the knife.

The main indications for Roentgen-rays are so far:

1. So-called idiopathic metrorrhagias.
2. Fibro-myoma of the uterus.

The X-rays work upon the ovaries, destroy their function, a so-called X-ray castration takes place; but besides fibro-myoma of the uterus have been observed to become diminished in size under direct exposure to Roentgen-rays.

Roentgen-ray treatment has proved of excellent advantage in hemorrhages before the climacterium, so untractable oftentimes. Nothing pathologic on uterus or ovaries is found, the curetting does not stop the flooding; sometimes we have to resort to hysterectomy. For these cases, with X-rays the flow can either be diminished (oligomenorrhoea) or entirely stopped (amenorrhoea). X-ray treatment is considered *the* treatment for these cases.

Opposition is made to this mode of treatment on the ground that with X-ray becoming of frequent use, many malignancies will be overlooked, or not be operated upon early, when the chances are best for permanent cure through operation. It is considered of absolute necessity that X-ray treat-

ment should be carried on only by an expert gynecologist, in order to minimize as much as possible this danger of overlooking malignancies or other contra-indications. It is argued that it is easier for an accomplished gynecologist to become an expert with Roentgen-rays, than for a Roentgen-ray expert to become an accomplished gynecologist.

The third matter is eclampsia. When we mention the word eclampsia, a long train of theories passes review before our eye. Every new idea, every discovery made in medicine in the last forty years has been utilized to explain the etiology of the eclamptic seizures of the gravid, parturient or puerperal woman. To some extent treatment of eclampsia has been influenced by these theories.

After the merely symptomatic treatment with large doses of narcotics came the short-lived period of sweating the eclamptic under the assumption of eclampsia being uremia with accompanying hydemia; then chloroform was used with fair success. The theory of intoxication of the maternal body through fetal metabolism ushered in the demand to rid the mother at once of the fetus. At first this was attained through obstetric measures; these soon became supplanted by surgical operations. Dührssen's vaginal Cesarean section gave a new record of recoveries, heretofore unattained. The vaginal operation in turn gave way to the abdominal classic Sectio Caesarea.

For a number of years it has been accepted almost without contradiction, that the best method to treat eclampsia parturientum is to empty the uterus at once; if there is sufficient dilatation of the uterus, perform version or apply forceps; if not, cut and get the baby out.

There were a very few who did not believe in this treatment, but they had to "go way back and sit down"—their voices were buried in the noise made by the surgeon-obstetricians. There was, however, a gentleman whom they could not kill: Professor Stroganoff of St. Petersburg, Russia, took even the trouble upon himself to demonstrate his conservative, expectant mode of treatment of eclampsia to some of the leading German obstetricians.

Stroganoff's method consists in: removal of all noise, light, touch from the eclamptic; besides he gives morphia and chloral hydrate alternately and waits for a natural delivery of the child. His statistics are excellent; he gives large numbers of cases, since short series of observations are of no value whatsoever.

Stroganoff found lately, in Professor Zweifel of Leipzig, a champion of his cause; Zweifel is undoubtedly the greatest living authority on eclampsia; Zweifel became doubtful of the surgical treatment for various reasons, chief among them being: 1, that his mortality under improved surgical technique has steadily been growing larger; 2, that he could not accept the theory of fetal metabolism as cause of eclampsia, since eclampsia occurs where the fetus is dead post partum, also it has been observed in cases of vesicular mole.

Zweifel attributes the success of surgical delivery to the loss of blood occurring in these operations; he found through careful analysis that the blood

of the eclamptic is not hydremic, but on the contrary concentrated above normal; he has adopted Stroganoff's expectant treatment and has added to it venesection. Under this combination he was able to have in a series of 84 consecutive cases, 5.9% mortality. With this combined treatment it has repeatedly been observed that eclamptic seizures during pregnancy ceased, the urine cleared up, gravaida went to term and was delivered in a normal labor.

These excellent results cannot be ignored by other clinics; Zweifel's treatment of eclampsia: venesection and Stroganoff combined, will certainly be tested.

I thought these observations and impressions might be of interest to you, especially since here in the "wild and woolly West" things are so entirely different. A terrific mania operativa is raging here: everybody "wields the knife"; the practice of medicine appears to have become purely surgery; when a doctor sees a patient, his first and only thought seems to be, What operation can I possibly do in this case?

I wonder how long this remarkable condition of affairs is to last?

STAPHYLOCOCCUS SPRAY FOR DIPHTHERIA CARRIERS.

JEWEL FAY, B. L., Berkeley, Calif.

The idea of treating diphtheria carriers with sprays of staphylococcus aureus originated with Schiotz¹ in 1909. He used the spray upon six carriers and reported complete success. In 1911 Page² reported the disappearance of diphtheria bacilli in seven cases after forty-eight to seventy-two hours of treatment. In the same year Catlin, Scott and Day³ reported the successful use of the spray in eight cases. Further investigation was made in 1912 by Lorentz and Ravenel,⁴ who also reported successful results. In these investigations no parallel cases were treated, as controls, by other methods, and serious doubt remained regarding specific antagonism between the staphylococcus aureus and the diphtheria bacillus. Moreover, in 1912 DeWitt⁵ carried out a series of experiments upon guinea pigs, and came to the conclusion that there is no antagonism between the staphylococcus aureus and the diphtheria bacillus.

This investigation was undertaken to make a comparison of the values of sprays of staphylococcus aureus culture and of a mild antiseptic solution in the treatment of the noses and throats of diphtheria carriers. An opportunity to treat a series of carriers was afforded through the kindness of Dr. Mark L. Emerson, physician to the State Institution for the Deaf and the Blind in Berkeley. Thanks are also due to Dr. W. A. Sawyer, Director of the State Hygienic Laboratory, and to other members of the laboratory staff for helpful suggestions and access to the records. The bacteriological work was done in the laboratory of the Hygiene Department of the University of California.

The Institution for the Deaf and the Blind at Berkeley underwent a small epidemic of diphtheria

early in 1912. The first case was that of a teacher who was taken sick in January. The second case occurred on April 16th and was followed by a third on April 30th. The fourth, fifth, sixth and seventh followed in rapid succession, the last appearing on June 7th. The second, third, fourth and fifth cases gave second successive negative cultures on May 14, May 2, June 24, and May 30, respectively. The sixth and seventh cases gave second negative cultures on June 29. When the school opened in August, Dr. Emerson, fearing another outbreak of diphtheria, undertook a bacteriological examination of the noses and throats of all the students in the institution. One hundred and forty-four nose and throat cultures were sent to the State Hygienic Laboratory and eighteen of these showed diphtheria bacilli. On September 7 I was given the opportunity of continuing the investigation, and took cultures of the remaining 75 children. Ten in this group gave positive cultures, making a total of 28 carriers (12%) among 219 children. Among the children examined were five of the seven persons who had had diphtheria in the outbreak described above. The third and seventh of the cases gave positive cultures, although they had given two successive negative cultures over two months before. The seventh case became Case 1 of Group A, while the third case was dropped from the series owing to interruption of treatment.

Twenty-four of these carriers were treated with staphylococcus aureus and antiseptic sprays. They were divided into two groups of twelve each, designated as A and B. The division into groups was made as fairly as possible, the cases of known or of suspected long duration being distributed equally between the two groups. Group A received treatment with staphylococcus spray prepared as follows: 100 c.c. of nutrient broth was inoculated with a large loop of staphylococcus pyogenes aureus which had been grown on artificial media for nine months. It was incubated over night at 37° C. and was sent to the institution early the next morning for use. As a control, Group B received a spray of the following composition: Formalin 0.2, alcohol 60.0, glycerine 15.0, made up to 240 with cinnamon water. These sprays were applied thoroughly upon the surface of each tonsil, the posterior wall of the pharynx and far back into the nasal cavities. The spraying was done by a trained nurse in charge of the hospital of the institution.

The two groups received three treatments each day on September 19 and 20 and September 25 and 26. Cultures were taken on September 22 and 28. These were followed by three treatments each day from October 1 to 4 inclusive. Cultures were taken on October 6. The next treatments were given October 8, 9, 10 and 11, and cultures were taken on October 12 and 14. After October 15 treatments were given three times each day and cultures were taken, as far as possible, every morning before the spraying. This regime was followed until each case gave two successive negative cultures. At this point it was decided that the carriers would probably not be dangerous to the other children if they continued to receive

treatment. As Dr. Emerson concurred in this opinion, they were released from quarantine but received treatments every day for 17 days after the last positive culture. They were then again examined bacteriologically.

The results of the treatment of groups A and B are shown in the following tables:

Group A: Carriers Treated with Staphylococcus Spray.

Case.	Date of beginning treatment.	Date of last positive culture.	Days between 1st treatment and last positive culture.	No. of treatments before last positive culture.	Total No. of treatments.	Date of last culture.
1	Sept. 14	Oct. 26	42	69	108	Dec. 7
2	Sept. 14	Oct. 6	22	27	67	Dec. 7
3	Sept. 19	Oct. 26	37	56	103	Dec. 7
4	Sept. 19	Oct. 12	23	36	78	Dec. 7
5	Sept. 19	Oct. 12	23	36	78	Dec. 7
6	Sept. 19	Oct. 6	17	24	63	Dec. 7
7	Sept. 19	Oct. 6	17	24	65	Dec. 7
8	Sept. 19	Sept. 28	9	12	66	Dec. 7
9	Sept. 19	Sept. 6	17	24	86	Dec. 7
10	Sept. 19	Sept. 22	3	6	57	Dec. 7
Total			210	324	765	
Average			21.0	32.4	76.5	

Group B: Carriers Treated with Antiseptic Spray.

Case.	Date of beginning treatment.	Date of last positive culture.	Days between 1st treatment and last positive culture.	No. of treatments before last positive culture.	Total No. of treatments.	Date of last culture.
11	Sept. 14	Oct. 6	22	27	66	Dec. 7
12	Sept. 14	Oct. 6	22	27	66	Dec. 7
13	Sept. 19	Oct. 30	41	74	112	Dec. 7
14	Sept. 19	Oct. 26	37	66	97	Dec. 7
15	Sept. 19	Oct. 25	36	66	98	Dec. 7
16	Sept. 19	Nov. 2	44	67	88	Dec. 7
17	Sept. 19	Nov. 2	44	67	88	Dec. 7
18	Sept. 19	Oct. 14	25	36	62	Dec. 7
19	Sept. 19	Oct. 14	25	36	62	Dec. 7
20	Sept. 19	Oct. 14	25	36	62	Dec. 7
21	Sept. 19	Oct. 6	17	24	70	Dec. 7
Total			338	526	931	
Average			30.7	47.8	84.6	

Because the treatments of two members of Group A and one member of Group B were interrupted, they were dropped from the list. Out of the remaining eleven in Group B, two cases (16 and 17) gave positive cultures after they had received treatments daily for 17 days following the last positive culture which preceded their first two successive negative cultures. All of the ten cases similarly treated with staphylococcus spray gave negative cultures after the corresponding 17 days of treatment.†

It was noticed that positive cultures were more apt to be obtained when a day elapsed between treatment and taking of culture than when the culture was taken on the following day.

A comparison of the averages of the two tables shows a slight advantage for the treatment with the staphylococcus spray. By this method a last positive culture was obtained in an average time of 21.0 days with an average of 32.4 treatments. This shows an advantage of 9.7 days and 15.4 treatments over the antiseptic spray.

Conclusions.

1. The length of time necessary to cause diphtheria bacilli to disappear from the throats of carriers by the use of sprays of staphylococcus aureus or of dilute antiseptics was sufficiently long to suggest that there was no decided antagonism, under the conditions of treatment, between either solution used and the diphtheria bacillus. It is regretted that a third set of controls was not treated with a spray of physiological salt solution to determine to what extent the final results were due to mechanical cleansing by frequent sprayings.

2. The difference between the effects of the staphylococcus spray and of the control spray suggested a slight advantage for the staphylococcus spray.

3. Treatment of diphtheria carriers with sprays of staphylococcus culture or of antiseptic fluids should be continued for several weeks after the last positive culture has been obtained.

4. It is highly desirable that further search be made for a method of treatment which will be promptly efficacious in ridding the throats of diphtheria convalescents and carriers of their infection.

References.

1. Schiotz, A: Ugeskr. f. Laeger, 1909, LXXI, No. 49; abstr. in Jour. Am. Med. Assn., Jan. 29, 1910, p. 422.
2. Page, H: Arch. Int. Med., Jan. 15, 1911, VII, p. 17.
3. Catlin, S. R.; Scott, L. C., and Day, D. W.: Jour. Am. Med. Assn., October 28, 1911, LVII, p. 1452.
4. Lorentz, W. F., and Ravenel, M. P.: Jour. Am. Med. Assn., August 31, 1912, LIX, p. 690.
5. DeWitt, Lydia M.: Jour. Infect. Dis., Jan., 1912, X, p. 124.

†Nose and throat cultures were taken from members of Groups A and B on March 18, 1913. The culture from Case 16 of Group B showed a few diphtheria bacilli. All the other cultures were negative.

PSYCHIATRIC DUTIES OF LARGE CITIES.

The discussion brought out by this paper (which was read before the San Francisco County Medical Society in March and was printed in the April Journal) seems to be sufficiently interesting and valuable to warrant its publication. It was not received in time to be printed with the paper, an early publication of which was urgently requested by the San Francisco Society.

Dr. W. F. Snow read the following letter from Dr. F. W. Hatch who was unable to be present:

It is evident that existing state hospitals do not fully answer the needs of the insane owing to their distance from centres of population and compulsory commitments. It is also apparent that existing measures for the care of the insane, previous to commitment, are not generally satisfactory and that neither the state hospital nor the quarters for the preliminary care of the insane afford the medical schools nor the medical profession the opportunities for the study of mental diseases that they should have.

The state hospitals with their receiving and treatment buildings are doing advanced work in the care and treatment of acute cases, but this usefulness is limited by the necessity of legal commitment before their advantages and aid could be obtained.

For several years I have advocated the plan of psychopathic hospitals in some of our larger cities where acute cases might be treated without the necessity of legal commitment. The difficulty in the way of the establishment of such hospitals is largely one of expense, or the source from which the funds for their maintenance will come. Is it to be met locally or by the state, or by the two sources jointly? As it is now the state has nothing to do with mental cases until they

are legally adjudged insane and committed to her care, hence it would seem a matter of municipal or county control. If the city or county will not assume the burden, may one not get joint action that will result in a division of the expense between the municipality and the state. Personally I have conferred with Judge Van Nostrand and Drs. McGettigan and Lustig of the Board of Examiners in Lunacy of San Francisco and I am sure we can rely on their assistance in advocating the securing of two wards in the new County Hospital for use as a psychopathic hospital.

As the City of San Francisco will maintain its hospital and will have the necessary equipment for heating, lighting and feeding the patients, may we not assume that that part of the expense will be borne by the municipality?

It is my personal opinion that we should have a resident physician detailed and paid by the state who should have general charge and control and who should be empowered to employ and discharge nurses, have proper clinical record kept and who should have some discretionary power in the matter of the admission of cases. I have conferred with the attorney of the Lunacy Commission regarding an amendment to the lunacy law and he is prepared to take it up whenever I call upon him.

I had hoped to be with you to-morrow night that we might discuss the matter at length but an unexpected meeting is called for to-morrow afternoon and a full attendance is desired so I may not be able to get away.

If the society will, after discussion, refer the matter to a committee, I will gladly meet with it and assist in formulating a plan and getting legislative action upon it. I can meet any day next week and the sooner we can get at it the better.

I have some amendments now before the legislature to which I can add any necessary amendment affecting the psychopathic wards.

Dr. W. F. Snow, Sacramento: I believe emphasis should be placed on what Dr. Richards stated at the close of his paper, i. e., that unless we as medical men take up the whole subject of prevention of insanity, we are going to drift farther away from the public. Dr. Richards is thoroughly conversant with Dr. Hatch's viewpoint and I have heard enough discussion in the Lunacy Commission to know that the administrative officers are deeply interested in this problem. You probably know that there are a number of bills pending before the legislature to change materially our present method of state supervision of affairs of state hospitals. The present Lunacy Commission consists of the Governor, Secretary of State, Attorney General, Secretary of the State Board of Health and General Superintendent of Hospitals. In the meetings of this commission, the question under discussion has come up a number of times. There is a feeling of unrest, and I think it only needs active and intelligent consideration of plans to provide for a very effective administration of the whole problem. By the whole problem I mean every phase of it from the first indications exhibited to the final commitment to one of the state institutions. The work of the mental hygiene societies is an important factor.

Dr. D. D. Lustig: Speaking for myself, I am thoroughly in accord with the views expressed by Dr. Richards in his excellent paper. In conferring with my confreres on the commission, we feel that the establishment of a psychiatric hospital is a necessity.

Dr. C. D. McGettigan: I have not much to add to what Dr. Lustig has said. We have worked together on the Lunacy Commission for a number of years, and at times under great stress on account of present conditions. We realize, I think, more than the other physicians here to-night, the need of a psychiatric ward where the acute mental

cases can be treated. We frequently send patients to the state hospitals that would recover in a very short time if properly treated. These include the various acute toxic manias due to alcohol, constipation, pregnancy, etc. I would also include in this list those cases of brain tumor in which a decompression operation would improve or cure. Dr. Lustig has visited Bellevue recently and we have tried to keep in touch with what they are doing in the large hospitals in the East. We wish the County Society to know that the Lunacy Commission of San Francisco is in full accord with anything that will advance the study of psychiatry or help the mentally afflicted.

Dr. R. L. Wilbur: I have been much interested in this paper and also in Dr. Hatch's discussion. This subject had interested me greatly since some years ago when I had the responsibility of arranging for the care of a young man who was arrested by the authorities of one of our large cities because of the symptoms of a cerebral lues. The difficulty and injustice associated with the care of acute mental cases with our present inadequate facilities is no doubt familiar to all of you. There has been, as you know, considerable advance in this regard in Los Angeles, but here our local Lunacy Commission has had greater difficulty in handling the problem. It is one of the crying shames of American civilization that when we are so successful in many of our projects that we have been so negligent of this important one. We have built large buildings in the country and taken fairly satisfactory care of the insane, but we have had great difficulty in having these buildings controlled by satisfactorily trained physicians and assistants. There has been but little systematic training of physicians in the care of the insane in the United States.

We have a rare opportunity in California to take hold of this problem in the right way. We have excellent accommodations in the present asylums, although they are, of course, inadequate. If we can take hold now in San Francisco of this more or less makeshift plan of temporarily establishing two wards in the new San Francisco hospital, I think that we should do so. We should look forward to the establishment of a high class psychiatric station for acute cases, which should be under the control of the state. In such an institution we could train medical men, change the whole care of the insane and handle it on a more scientific basis. I think there is nothing in our present law to prevent this. If we can put ourselves on record as favoring this plan, it would be a stepping stone to what we want and that is to have the care of the insane handled as it is in Germany and in this country in New York, Boston and now in Baltimore.

I move that the society place itself on record as favoring the establishment by the state of a central station for acute mental cases in San Francisco, and that a committee of three or five be appointed by the president of the society to take this matter up with Dr. Hatch.

Dr. H. C. Moffitt: I think there is a movement all over the country just now which we should follow. I have had an opportunity of talking this matter over with Dr. Wilbur, and we are at one from the standpoint of the universities, that the teaching of psychiatry is a tremendous need in our community and among our students. We also feel that in the teaching of students and the preparation of the profession there is a tremendous lot of work to be done by an institution of the kind that has been outlined in detail by Dr. Richards. Dr. Waterman knows of some of the social questions which are particularly connected with a hospital of this kind, and there is nobody better able to tell us what has been done in Los Angeles in this direction than Dr. Waterman. I feel as Dr. Wilbur does that we shall have to have a big in-

stitution here, to be developed under the direct guidance of the state; but such an institution can not be gotten right off and we should take what we can get. It seems possible, if we all get together now, that we can put through this beginning. I feel very strongly that we should co-operate in every way possible with Dr. Hatch and other individuals to see the clinic started at once. There is a growing need for it and I think the universities feel that need as much as anyone in the community.

Dr. H. J. Waterman: The work in Los Angeles has been that of psychopathic parole. It was started at the request of Judge James Hutton, who felt that so many of the cases brought before him were not cases for asylums that he appealed to the ladies of the Federated Clubs and asked them to come to his assistance. They, in co-operation with the Lunacy Commission, established a little home called Rest Haven. The supervisors of Los Angeles allowed them \$125 per month and the other expenses were met by churches and other charitable organizations. They had charge during the year of 80 patients, among them 15 complete recoveries and a large proportion were greatly improved. There was a request that such work be established here, but in consulting with our Lunacy Commission we found that there was not the same need here, as we have a small detention home where our physicians are able to watch their patients for a few days or a week before commitment. After talking with the staffs at various insane hospitals and four well equipped insane asylums, we felt that the greatest need was for a large central detention home. If we can have that established other needed work can be included and with the work of social service we can carry out this psychopathic parole work satisfactorily.

Dr. W. Ophüls: This is far afield from my usual work. The only thing I have been thinking of was this: when it comes to the practical solution of the question, it will take quite a campaign before the board of supervisors to get them to appropriate funds to run these two wards. It seems to me, however, that this is the only opening to get something done, and as long as the city has to take care of the insane before they are committed, I do not see why they should not enlarge the service in order to take care of these unfortunates in a decent and scientific manner.

Dr. P. K. Brown: I do not think many of you can have had much experience in the care of insane cases without feeling perfectly hopeless in the face of the situation here. Were it not for the kindness of certain men on the Lunacy Commission, the situation would be impossible. I have known several of them to give many hours of their time without thought of remuneration, in studying these cases to save their being taken to the detention hospital. The present one is a great improvement over anything we have had in the past, but it does not fill the needs of the case. A lot of these cases need to be seen many hours a day and a visiting physician does not have time for the study of these cases. Both physicians and nurses should have a chance to learn how to care for such cases. There would be vastly less horror of such institutions, and acutely insane patients would get prompter and better care. There are lots of defects in the present situation. Thus, alcoholic psychoses present one of the serious drawbacks. If a man is committed to an asylum with an alcoholic delirium, he is often discharged in a few days and that man can commit any crime thereafter and never have judge or jury convict him because of a history of having been possibly only five days in a state hospital for the insane. The situation is entirely wrong, and the difficulty of getting records out of these hospitals often prevents these cases being properly handled.

Dr. H. C. McClenahan: First, I wish to subscribe generally to what Dr. Richards has said. It seems to me, however, that the question to be decided by this society is not whether we could get psychiatric wards in the County Hospital, which I agree with Drs. Moffitt and Wilbur is a makeshift, but to make recommendations, looking forward to a correct solution to the handling of the insane in large cities. I do not think we can make any mistake if we profit by the experience of other large municipalities, such as Philadelphia, Boston, and New York, in their attempts to solve this problem.

They found the pscopathic clinics, and the pscopathic wards in the general hospitals, inadequate, and have established state pscopathic hospitals in those cities, at least so in Philadelphia and Boston (I am not well acquainted with the situation in New York but had occasion to observe the work at Blockly Hospital). As you all know, while this is a general hospital, their pscopathic department is practically a separate institution in grounds to itself. Cases are sent from all the different clinics. The commitments are done in the hospital; if necessary delayed, and the hospital has a regular staff from the different teaching institutions.

In Boston they have been wrestling with this question for the past fifteen years, and finally established a state pscopathic hospital, only last year. Dr. E. E. Southard is its medical director, and also occupies the chair of neuropathology at the Harvard Medical School. A very interesting historical review by Dr. Channing of the establishment of this hospital is to be found in last November's *Journal Nervous and Mental Diseases*. I think you will find that under the California constitution, the insane are regarded as wards of the state and not the municipality. Hence to recommend the municipality's taking primary steps would seem to be going at the problem from the wrong end.

Instead of Dr. Wilbur's resolution, I should have very much preferred that this society go on record as in favor of the establishment in San Francisco of a state pscopathic hospital, with the co-operation of the municipality, and the privilege of availing itself of the teaching staffs of the two universities; this hospital to be distinct from the county or any other hospital. If we are unable to secure such a hospital at the present time, then the establishing of psychiatric wards in the County Hospital might be justified especially to fulfill the purpose of study and teaching. (Dr. Wilbur changed his motion to read "the establishment by the state of a central station for acute mental cases in San Francisco," etc.)

We must not forget that in the establishment of State hospitals their location in the county was largely due to the position of the medical profession, i. e., that about all that could be done for the insane was custodial care, where they could get fresh air and work on the farms, etc. We know that this applies only to a part of the mentally affected and that particularly acute cases of mental disorders are sick people and require correct diagnosis and the best hospital facilities possible. And since medical men have created this attitude on the part of the legislative bodies, I think it is up to us to correct that impression, and put the lawmaking bodies right as to the present status of scientific medicine toward mental disorders.

I do not agree with Dr. Brown that the alcoholic can be best treated in pscopathic wards, or anywhere else, unless he is primarily controlled, and I mean by control, legal control, without which practically all efforts at successful treatment are futile. The alcoholic who requires treatment requires control first. This is in accord with the large majority of those who have had extensive experience with these individuals.

Dr. H. C. Moffitt: I agree with Dr. McClenahan, and I would not care to go on record as favoring this proposition except as a makeshift, aiming eventually at an institution which is big enough, one modeled after the successful one lately opened in Boston. As I understand it, the committee is to confer with Dr. Hatch and prepare a proper scheme, of which this is a part.

Dr. Richards (closing discussion): This question of psychiatric hospitals or wards and of after care of the insane has become very active in many places in California. In Los Angeles they have already established psychiatric wards and an after-care society. As to the state establishing a psychiatric hospital in San Francisco, it would probably be advantageous to consider the question of the state's present obligations. One-third of the people of California live south of the Tehachapi Pass, and in that section there is only one state hospital. It is evident that the state must meet the need of an additional state hospital in that section. At present, in several of the state hospitals, the number of patients is in excess of the capacity of the hospitals, and the patients are sleeping in corridors and on the floors. At this time, therefore, the state has all that it can well do in regard to the establishing of hospitals. The question is not that we are doing the ideal thing in arranging for psychiatric wards instead of a psychiatric hospital, but that we are doing something. From the discussion here to-night I think it is perfectly well-established that co-operation is the thing that is chiefly needed. I believe that the committee to be appointed,—after consulting with Dr. Hatch,—will be able to report to the society the best measures possible. The work is practically one that follows from the beginning of mental disease in the locality in which it originated to the state hospitals. I wish distinctly to insist that state hospitals are not homes for incurables; but that in each of our state hospitals is a receiving department, where all possible measures are taken to effect speedy cures. We have a percentage of recoveries that is entirely satisfactory. But there is a wide field in the first care of mental cases,—the responsibility of which rests with the cities. In addition, it is true that the physicians in the state hospitals should have opportunity for post-graduate work in their particular lines in the medical centers of the state. I think that to-night we have seen a movement begun that will result, not only in the ultimate establishment of a psychiatric hospital, but in a national society for mental hygiene; that the work will begin in the medical society and be under the direction of medical men; and have an entirely harmonious development of the treatment of psychiatric diseases in the large cities. This is something for which we should be very grateful.

RAILWAY SURGEONS

REPORT OF A CASE OF SARCOMA-TOSIS.*

By J. H. O'CONNOR, M. D., and W. T. CUMMINS, M. D., San Francisco.

History: Mr. C. H., aged 49, an engineman, was admitted to the Southern Pacific General Hospital on September 23, 1911. His father and mother died of pneumonia. Patient stated that his habits were temperate, and that he had had gonorrhea but denied luetic infection. No other diseases were elicited. Present condition began three years before with a slight swelling in the left supraclavicular

* Read before the Pacific Association of Railway Surgeons, San Francisco, August 30, 1912.

lar region. This gradually increased in size without pain or loss of weight.

Examination: Patient appeared well nourished. Pulse and respiration normal. No fever. Tongue clean. Thorax and abdomen negative. In the left supraclavicular region there was a firm, movable mass about the size of a hen's egg. Other superficial lymph nodes not palpable.

Urinalysis: September 23, clear, yellow, sp. gr. 1020. Acid. No albumin nor sugar. Uratic sediment.

On September 25 the supraclavicular nodule was removed under ether anesthesia. Cyanosis and dyspnea rendered oxygen necessary. Pathologist's report notes "that the tumor was the size of a small hen's egg, of soft consistency and having a thick fibrous capsule. The cut surface was white with numerous yellowish, soft areas. Sections show tumor to be made up of bands of connective tissue between which are areas of large cells with rather clear, oval nuclei arranged between delicate fibrils of connective tissue. Many of these areas show fatty degeneration of the cells and in the centres considerable necrosis."

Diagnosis: "Sarcoma" (Dr. H. W. Gibbons).

The patient remained in the hospital 43 days, having been discharged apparently well on November 6. Except for a period of 5 days beginning the day after the operation the pulse, temperature and respirations were normal. The maximum during this period was 100.6°. On October 10, ½ minim of Coley's fluid was inoculated and this was repeated on October 13, 20, 23, 26, 30 and November 1. The only reaction in each instance was profuse perspiration.

He was readmitted to the hospital on May 23 with the following history in the interval: Evidences of tumor growth appeared at the site of operation one month after discharge from hospital. About the middle of February a small, superficial mass appeared in the right, lower, abdominal quadrant and this slowly increased in size. Just below the right clavicle a mass similar in character appeared about May 1. There were no subjective signs; the tumors were painless.

Examination: Large, stout, well-built man. Eyes, nose, ears and mouth apparently normal. Lungs negative but heart sounds were rather weak. A freely movable superficial nodule 1x2 cm. (lima-bean sized) was seen in the right infraclavicular region. Another nodule of about the same size was seen in the anterior abdominal wall, as above noted, and this was firmly adherent to the underlying tissues. Other smaller nodules were seen just to the right of the xiphoid cartilage, around the umbilicus, and over the biceps of the right arm. Reflexes were normal. There were no evidences of intracranial disease. The thyroid was apparently normal.

Urinalysis: May 24, clear, yellow, sp. gr. 1022. Acid. No albumin nor sugar. Microscopically negative.

On May 25 he was again operated upon and the tumor on the arm and those near the xiphoid and right clavicle were removed by wide incisions. There were no post-anesthetic complications. The tumors were of fleshy consistency, coarsely granular, and contained a moderate amount of blood. Several small areas of softening were seen, the consistency being that of thick cream. Microscopic examination showed each nodule to be made up largely of definitely circumscribed collections of cells with oval and round vesicular nuclei enclosing in many places vascular clefts. Many of these cells appeared spindle-shaped. Occasional karyokinetic figures could be seen. Some sections showed extensive necrosis. Here and there collections of lymphoid cells were noted.

On May 30 restlessness developed and on June 1 severe headache and nausea appeared. The following notes were made on June 8: "For the past

few days the patient seems to have lost power of using the left arm. He has had severe frontal headache and seems drowsy much of the time. He appears uncomfortable in bed and frequently changes his posture. No aphasia. Slight paresis of left side of face. Temperature and tactile sense equal on both sides. Left arm shows marked weakness. All motions are performed slowly and with apparent effort of the will. Temperature and tactile sense present. Temperature sense is lost in left hand. He fails to localize tactile sensations in the fingers. Left leg is unaffected. Reflexes active. No Babinski, etc. Muscular power good." (Interne, Dr. Powers). Evidences of recurrence of mass near xiphoid were noted and the smaller nodules near the umbilicus rapidly increased in size.

On June 9 the patient became delirious for a short period of time and upon recovery from the same complained of severe headache. Restlessness was a prominent symptom. Dysphagia was noted on the 13th and on the following day there was a short period of coma. Weakness increased, the periods of coma became more frequent, Cheyne-Stokes' breathing developed and death occurred on June 16.

Clinical Diagnosis: Multiple sarcomata (sarcomatosis).

Postmortem Record: Moderately obese adult. Marked rigidity of extremities and moderate lividity of dependent parts. No eruption, scars, bruises, nor bed sores. Incisions from recent operation in epigastrium, over right clavicle and right upper arm. Eyes, ears, nose and mouth apparently normal. External genitalia normal. Superficial lymph nodes not enlarged.

Preliminary abdominal incision showed much adipose tissue. Peritoneal serosa smooth, moist and pale with normal amount of clear, yellow fluid in sac. Omentum contained much fat and extended to a point midway between the umbilicus and pubis. In the omental tissues (median line) and overlying the transverse colon a nodule was noted of flesh-like consistency and color and of horse-chestnut size (3x2x1 cm.). Overlying this and situated in the muscular tissues of the abdominal wall close to the preliminary incision and just above the umbilicus there was a nodule identical in general appearance with the preceding but somewhat larger (5x5x3 cm.). Another nodule of intermediate size (5x3x1 cm.) was intramuscularly located just below the tip of the xiphoid cartilage. In the left iliac fossa near the attachment of the descending colon two lima-bean sized, chalky-white, pedunculated, fleshy, peritoneal nodules were observed. Further peritoneal examination revealed four soup-bean sized masses in the mesentery of the small intestine, the same in the left peritoneal adipose tissue, one chestnut-sized nodule at the head of the gall bladder and the same between the bladder and the rectum. Position of organs normal. Diaphragm on left side at 5th rib and on right at 4th rib.

Spleen weighed 180 grams—12x7x2 cm. Color was gray and consistency rather soft. Capsule wrinkled and stripped with difficulty. Cut surface brownish red, pulp soft and trabeculae very prominent, while follicles were indistinct. No evidence of tumor metastasis. Liver weighed 1680 grams—22x15x6 cm. Color was pale, yellowish red and consistency rather soft. Capsule smooth but presented several pinkish white, slightly elevated, split-pea sized (5x10 mm.) areas the counterpart of which were found upon incising the organ. They were definitely circumscribed but were evidently not encapsulated. The intervening parenchyma was yellowish red. There were no signs of cirrhosis. Gall bladder was distended with dark green fluid. No calculi. Mucous membrane and wall apparently normal except at head where there was a soft, dark green nodule of chestnut-size projecting into the cavity. The ducts were patulous. The stomach wall was of normal thickness. Mucous membrane congested and focally hemorrhagic. The intestinal

mucosa was moderately congested throughout, while here and there small hemorrhagic points were seen. Mucosa of the colon was somewhat thickened and in the cecum and ascending colon follicular changes were observed. Appendix was 11 cm. long and showed moderate congestion of mucosa. Split-pea-sized concretion present at tip.

Pancreas weighed 270 grams—17x5x3 cm. Uniform induration of moderate grade was noted except for several small nodules of firmer consistency. General color was pinkish white.

Left kidney weighed 260 grams—10.5x6.5x4 cm. Considerable difficulty was experienced in removing the organ on account of the dense adhesions to the surrounding tissues. Dark red and flabby. Capsule stripped with difficulty. Incision showed moderate amount of blood. Color brownish red. Cortex moderately increased (10 mm.). Several pea-sized, pale, firm nodules were scattered through the cortex and medulla. Pelvis was apparently normal. Ureter and adrenal apparently normal. Right kidney weighed 190 grams—11x6x3.5 cm. It was similar in general appearance to its fellow except that only one nodule of pea-size was seen. Ureter and adrenal apparently normal. Bladder showed moderate diverticulation and thickening of wall. Prostate was about the size of a horse-chestnut but showed no evidence of metastasis, although there was a contiguous nodule, as before described. Rectal wall also was not involved. Testicles were apparently normal, while the left epididymis showed some nodular thickening.

Left pleural sac showed no excess of fluid and no adhesions. Lung weighed 610 grams—20x17x6 cm. Color was slatey gray with anthracosis. Surface showed a few small, pale, somewhat elevated, firm nodules. Upon incising these resembled those of the liver. Further incisions showed more nodules between which the tissues were uniformly crepitant and anthracotic except at the base of the lower lobe where some congestion and edema were seen. Right pleural sac showed no excess of fluid and no adhesions. Lung weighed 910 grams—21x17x5 cm. Same general color as its fellow. Above mentioned nodules were less numerous but larger than in the left lung. They varied from the size of a millet seed to that of a horse-chestnut but of the same general color and consistency. Congestion and edema at the base of the lower lobe.

Pericardial sac showed a moderate increase of clear, yellow fluid. No adhesions. Heart weighed 380 grams—14x9x5 cm. Moderate amount of subpericardial fat. Coronary vessels apparently normal. Muscle dark red and somewhat flabby. Valves apparently normal. In the right lateral wall of the right auricle there was a fungoid, chestnut-sized mass 2x1.5 cm. projecting 0.75 cm. into the chamber, of pinkish color, firm consistency and with nodular surface. This extended to the subpericardial tissues. In the posterior wall reflected through the endocardium there was a split-pea-sized, yellowish, slightly elevated nodule. In one of the tricuspid papillary muscles near its distal end there was a millet-seed-sized, yellowish nodule embedded in the tissues. Aorta showed in its arch numerous large and small yellow plaques of sclerosis.

The thyroid gland was moderately enlarged, firm and somewhat paler than normal. Incising showed almost its entire substance to be yellowish white and in places cheesy, while there was no clear demarcation between this and the apparently normal tissues. Deep cervical lymph nodes were pea-sized and incisions showed uniformity of structure—pale and firm.

Brain: Weight 1290 grams—21x17x8 cm. Convulsions well formed. Meningeal vessels moderately congested. No exudate nor fibrous thickening. Distant 1.5 cm. from the longitudinal fissure in the right parietal lobe there was a gray, non-elevated, soft, definitely circumscribed area about

the size of a quarter dollar—2x2 cm. Meningeal surfaces elsewhere were negative. Upon incising the right hemisphere this mass was found to extend well into the temporo-sphenoidal lobe with its axis at right angles to the longitudinal fissure and throughout its entirety without cortical invasion. It was materially softer than the surrounding tissues and clearly demarcated therefrom; gray in color; with points of hemorrhage—6.5x5.5x3 cm., the latter being the depth of the mass. Upon incising the left hemisphere just below the cortex there was found almost directly opposite the above and equidistant from the longitudinal fissure, an area similar in color, consistency and demarcation and of pea-size. Close to this was an area of hemorrhage. The cerebral tissues in both hemispheres were uniformly pale and soft. The cerebellum was apparently normal. The pons showed punctate hemorrhages. (The spinal cord was not removed.)

Histologic Examination: Brain: Sections of the right parietal lobe showed a clear demarcation of the tumor from the surrounding normal tissues. In places the intervening zone showed hemorrhage. Where the tumor appeared upon the serous surface of the organ there were no remains of meninges but in adjacent areas there was no evidence to show that the tumor had a meningeal origin. The cells composing the mass were multiform, i. e., stellate, spindle-shaped, oval, round and other bizarre shapes—all with round or oval vesicular nuclei which here and there showed karyokinetic figures. These cells were for the most part arranged in irregular masses—wide and narrow bands and circular masses. There were several blood vascular channels (filled with erythrocytes) which were completely enclosed by these cell masses, while in addition there were a few similarly enclosed clefts, the vascularity of which was indefinite. Congestion was moderate, a few hemorrhagic areas were seen. A number of necrotic areas were scattered through the tumor. Sections of the left parietal lobe through the previously mentioned pea-sized nodule showed it to be made up of tissue identical in appearance with that immediately described. Sections of the apparent hemorrhagic area showed it to be another tumor nodule—a counterpart of the preceding ones—with considerable necrotic and hemorrhagic changes. Thyroid: Sections through the isthmus showed necrosis as a feature. Elsewhere, cellular masses were seen in conformation similar to the preceding. No stellate cells were to be seen. Vascular channels were few. The thyroid tissue itself showed atrophic acini and very small amounts of colloid.

Heart: Sections through the fungoid, auricular mass showed closely massed cells of the forms noted in the thyroid. Vascular clefts were few. Several hemorrhagic and necrotic areas were present. Sections through the smaller auricular nodule revealed a similar structure while from those through the involved papillary muscle no satisfactory examination could be made. Lung: Sections through a medium-sized tumor nodule showed the cells and conformation of masses similar to the thyroid. Scattered collections of lymphoid cells were evident, as well as a few necrotic areas. The adjacent pulmonary tissues were moderately congested, fibrous and anthracotic. Spleen: There was moderate capsular and trabecular fibrosis, as well as congestion. The small follicular arteries showed hyalinization of their walls. There was absence of tumor metastasis. Gall Bladder: Sections of nodule showed structure similar to thyroid. Pancreas: Sections through grossly described nodules showed indefinitely outlined tumor masses closely resembling that of the thyroid. Moderate congestion and several necrotic areas were noted. Elsewhere the tissues were fibrotic. Small Intestine: There was moderate fibrosis and round cell infiltration of the mucosa and submucosa. Kidneys: Moderate cloudy swelling of the cortical epithelium

and moderate hyperemia were evident. Tumor masses were indefinitely outlined but identical in structure with the thyroid. Several hemorrhagic areas were included and at the margins of the nodules collections of round cells were seen. Prostate: Many acini contained corpora amylacea. Some hyperplasia of the connective tissue noted. No tumor metastasis. Testicle: Moderate degree of fibrosis present. Peritoneal, retroperitoneal, mesenteric, omental and retrovesical nodules showed tumors identical in type with that of thyroid. The same may be said of the intramuscular growths in the anterior abdominal wall. Deep cervical lymph nodes showed lymphoid hyperplasia but no metastasis.

Pathologic Diagnosis: Endotheliomata of the thyroid, cerebrum, heart, lungs, liver, gall bladder, pancreas, kidneys, peritoneum and anterior abdominal wall; chronic interstitial pneumonitis; splenitis; pancreatitis; enteritis and appendicitis; acute parenchymatous nephritis; chronic prostatitis and orchitis; lymphoid hyperplasia of deep cervical lymph nodes.

Remarks: The following points in this case are of interest: the multiple peripheral foci, the extensive internal metastasis, the almost complete involvement of the thyroid without evidences of hypo- or hyperthyroidism, and the widespread destruction of the right parietal lobe with the first appearance of cerebral symptoms only two weeks before death. All the tumors had uniformly the same structure, except that there were numerous stellate cells in the cerebral masses and an absence of the same elsewhere. With the vascular channels, the forms and arrangement of the cells, endothelioma was suggested; however, there seemed a possibility that the cerebral condition might be gliosarcomatous. Mallory's and Van Gieson's stains excluded the latter. It is likely that the primary focus was situated in the thyroid on account of the almost complete involvement and widespread necrosis of the same with the presence of a single mass and that the brain was secondarily invaded as indicated by the multiple masses.

A FEW REMARKS ON THE MANAGEMENT OF TYPHOID.*

By G. R. CARSON, M. D., San Francisco.

About fifty or sixty typhoid patients of all types enter the Southern Pacific Hospital every year; walking typhoid, para-typhoid and severe hemorrhagic types. Some of these cases arrive in the first week, others in the second and third weeks. Some are transported from quite a distance; so we have a fairly good opportunity for observing and studying this disease. I have observed some five hundred cases during the past few years, from the days of the strictly milk diet and ice cold baths to the days of forced feeding and the tepid sponge. Naturally some of these observations have left rather marked impressions on me.

It is not necessary to give a typhoid drugs just because he has the disease; the less drugs the better the case will do. There is far too much unscientific prescribing. It is a mistake, and one that is very prevalent to believe that therapeutics means treatment only. Therapeutics covers the whole field of management of the disease. It is a mistake for a physician to declare he has cured typhoid; what he does do is to manage the disease and the patient who has it. The details of this manage-

ment, diet, physical treatment, and lastly medical necessities, comprise the therapy of the fever. In other words, more therapeutics and less medicines in typhoid.

Why should we not feed our typhoids when Nature calls out so for assistance? Are we to remain blind to this call? If he is hungry, feed him—a moist tongue and an appetite is a good guide. The mortality is lessened by feeding. Years ago at the Southern Pacific Hospital our mortality was about 12 per cent.; it is now about 2 to 3 per cent., and some years no per cent.

It is a mistake to begin with a milk diet and later during the height of the fever commence feeding your case. Start with a good varied diet from the onset. A liberal diet of high caloric value is indicated to keep up the body weight. Dr. Warren Coleman of Cornell, whose recent articles have appeared in the medical journals, has done much work along this line. In fact one of his recent associates informed me that he gave a prize to the typhoid who ate the most. The well-fed typhoid goes through the disease happier and more contented. Tympanites and other complications are lessened and we really have not any sequela with which to deal. The convalescent stage is virtually eradicated. It is doubtful if it ever will be determined that any one diet is the only correct one for typhoid fever—the patient has his dietary habits and his ability to digest certain foods during typhoid fever must be individualized. Therefore a diet correct for one patient may be absolutely incorrect for another.

Also such complications as diarrhea, hemorrhage and vomiting must be considered. It is often necessary to stop all feeding for a time. The diet now in use at the Southern Pacific Hospital is varied and mixed and consists largely of eggs, milk, oatmeal gruel, tea, coffee, cocoa, rice, wine and orange jelly, various soups, crackers with milk, soft puddings, ice cream, soft toast, apple sauce, buttermilk, finely minced lean meat, soft part of raw oysters and many other articles of food. Salt and sugar are used enough to flavor. The food is given in small quantities every two hours during the day and every four hours during the night if patient is awake, but must not be disturbed, as sleep is very essential. The object in mind being to administer enough of all, to keep the physiological process as near normal as possible while the patient is going through the disease. It is well to give an abundance of water to drink.

As to baths, the tepid friction bath is more agreeably borne by the patient and good reaction is usually secured; the ice cold bath has about been discarded. Cleansing baths are given daily. Occasional use of the ice-coil to head and abdomen keeps the patient quiet and comfortable and tends to keep down the fire. When a patient reacts well from a bath it is the proper one for him. By reaction is meant, the effect on the circulatory, respiratory and nervous system.

Salt solution enemas are given as a routine, three times in twenty-four hours if the temperature remains high. It lessens the toxemia, increases the

* Read before the Tenth Annual Meeting of the Pacific Association of Railway Surgeons.

flow of urine and diminishes the liability to tympanites. Low enemas are given every other day for constipation and no purgatives by the mouth. Hemorrhage cases are treated in the usual way—all feeding is stopped for a while. Horse serum, morphia, subcutaneous salt solutions, calcium lactate, turpentine, etc., may be used. If tympanites can be lessened the hemorrhage usually ceases.

For cardiac failure the hot mustard pack is often used to dilate the peripheral circulation and bring the skin heart to the assistance of the organic heart. Also the use of strychnia in large doses, digitalis and camphorated oil are to be recommended. Immediate operation saves some cases of perforation. A few cases have had autogenous vaccines, but they did not seem to change the course of the disease. Schafer serum or vaccine was used on a few cases as a last resort; these cases recovered, but just how the vaccine acted was not known. A few cases were kept on an exclusive buttermilk diet, but the fever was little influenced. Have not used the typhoid prophylactic vaccine, but should a case be diagnosed during the first few days of onset it might be of service in aborting the case. Some observers have noticed this in a few instances.

Hiss leukocyte extract has been used to produce a leukocytosis in this leukopenia disease—it does produce a leukocytosis but does not help the patient.

None of our typhoid patients are discharged from the hospital as cured until a final examination is made of the urine and stools and found free from the typhoid germ, as a typhoid carrier in a railroad camp is a dangerous thing.

Discussion.

Dr. T. W. Huntington: For many years I have maintained an acute interest in this department of medicine. Regarding the treatment of typhoid fever, I, very early, satisfied myself that one measure, above all others, is essential as a therapeutic agent, and I have seen no reason for changing my opinion since I abandoned this line of work. I refer to the ice coil used intelligently and persistently throughout the acute stage of the disease. I think I may say, without fear of challenge, that I was the first person to devise and use the ice coil. Long before Leiter made his announcement, I had used the ice coil in typhoid fever. The results which attended my efforts when I was enabled to employ the coil, early in the course of the disease, were to me remarkable. Its employment means a uniformly low temperature from the beginning to the end of the disease; that is, the range of temperature may be maintained at from 99° to 103°, with an average high temperature of 101°, save in a few rare cases. Under its use, the patient sleeps quietly at night, takes and assimilates a reasonable amount of nourishment, maintains his weight with slight loss. His mental condition is slightly, if at all, below normal. There is an absence of delirium, nervous irritation, diarrhea, tympany and bowel hemorrhage. Bowel perforation is of exceedingly rare occurrence, if encountered at all. A thing which impressed me very deeply was that, when the coil treatment has been intelligently carried out for three or four days, the patient and the patient's friends always sharply resent any interruption of its use. In a few cases, where the ice coil fails to control the temperature, it may be supplemented by a judicious use of phenacetin. This is insisted upon by so able an authority as Dr. W. A. Briggs of Sacramento, who maintains that the use of phenace-

tin in typhoid fever is not only safe but rational, and in a few cases essential. Another method of control of temperature is ice water irrigation of the rectum. This may be used through a double current catheter and the flow be made, thereby, continuous. Under its use the temperature should be carefully noted, as frequently it drops rapidly under this method of procedure.

Dr. Cummins: In regard to the vaccine treatment. Vaccines, as you know, may be used for prophylactic or therapeutic purposes. We have not used it prophylactically at the hospital, but we have used the autogenous vaccines on two cases for therapeutic purposes. These cases were mild and they made a very rapid recovery. It is said that particularly severe cases are not suitable for the administration of vaccine. A German method is to immunize rabbits against typhoid. Their spleens are then removed, macerated in sterile salt solution and given to the patient by mouth. It seems a rational procedure, but very little work has been done in this country on that treatment of typhoid.

Dr. Carson, closing: We have recently had an epidemic of typhoid fever among train employees on the same run; engineers, firemen and brakemen came to the hospital who had run on trains between certain points. A thorough investigation was made by Dr. Cummins and prophylactic measures adopted. Since then no new cases have occurred in that district. The tender on the engine is filled with water from various tanks along the line, hence firemen and enginemen, who drink from the tender are more liable to contract typhoid; furthermore, firemen and engineers drink eight or ten times more than those in other occupations. I hardly agree with Dr. Huntington regarding the ice coil. It is very agreeable to the patient and tends to keep down the fever. Colon irrigation with salt solution is very beneficial; it increases the flow of urine, tends to diminish the liability of tympanites and causes a favorable reaction; also makes up for the deficiency in salt in the feeding. I am rather opposed to the use of phenacetin and other coal tar products in the treatment of typhoid. I like to know how my patient is doing. Phenacetin depresses the heart's action and tends to hide the true condition of the patient. Much harm I believe has been done in the past by improperly giving ice cold baths; this drives the blood into the deeper organs and congests them. Regarding feeding of typhoid, I am fully convinced that a liberal diet should be adopted from the beginning of the disease.

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ASSOCIATION NEWS.

Membership in the American Medical Association. The Proposed Change in Name.

GEORGE H. SIMMONS, M. D., LL. D., Chicago.

Explanatory Note:—This abstract of an address before the Conference of State Secretaries is republished from the American Medical Association Bulletin of November 15, 1912, on the request of the Judicial Council. The House of Delegates referred the report of the committee to formulate amendments to the Constitution and By-Laws to extend membership, presented at the 1912 session (Journal, June 15, 1912, p. 1899) to the Judicial Council with power to confer with constituent associations. The Council, after careful consideration, endorses the proposed change and takes this means of bringing the subject to the constituent associations as well as directing to it the attention of the members.

I have been asked to discuss the present conditions of membership in the American Medical Association and the proposed change, which has been under discussion recently. While this is not directly related to the object of this conference, the discussion of uniform regulation of state membership, it is so closely connected with it that I can not refuse to take advantage of the opportunity of discussing the question before such a large representation of state secretaries.

To get a clear understanding of what the present term "members" of the American Medical Association means, it is necessary to go back a little in the history of the Association.

The American Medical Association always has been a delegated body; only "delegates" ever had a right to take part in its proceedings.

"Permanent members" was a term originally applied to those delegates who connected themselves permanently with the Association after they had served as delegates. "Permanent members," however, had no rights except those of attending the meetings and taking part in the scientific work. In 1883, the Journal was started and the following year, for the purpose of increasing the circulation of the Journal, there was created another class: "Members by Application." A member of any so-called affiliated society could become a "member by application" simply by making application for membership and paying the annual dues. The difference between "members by application" and "permanent members" was that the latter had been delegates, whereas the former became members simply by making application. Neither "permanent members" nor "members by application" had vote or voice in business meetings.

Membership in the A. M. A. Today on the Same Basis as the Former "Members by Application."

Briefly, we have the following situation:

1. The voting membership of the organization is the combined membership of all the 2,000 (more or less) component county societies, amounting approximately to 70,000 members. These elect the delegates to the House of Delegates of the state associations; they in turn elect the delegates who form the House of Delegates of the American Medical Association. Before 1901 the delegates to the American Medical Association were elected, or appointed, by the "affiliated" societies, which included local, district and state societies. Since 1901, that is, since the reorganization, the dele-

gates to the national body are elected not by local, district and state societies, but by the state societies alone.

2. The so-called "members of the American Medical Association" are the direct successors of the old "members by application." By their payment of dues and their subscriptions to the Journal, they were and are today the supporting or contributing group of the members of the organization.

3. The House of Delegates is composed of approximately 150 members, who are elected by the various state Houses of Delegates, which are in turn composed of delegates elected by the members of the component county societies. The House of Delegates of the American Medical Association, therefore, is created by, and represents the combined membership of all the county societies of all the states; it is not elected by, nor does it represent, the present "members of the American Medical Association" as such; it never has.

The result is that we have two classes which could be called members. First, the actual, logical memberships of 70,000, usually designated as "the membership of the organization." Second, the 36,822 contributing or supporting members, who are designated as "members," although these "members of the American Medical Association" have no more privileges than have all members of the organization, except the right to take part in section work. This present situation I have had shown on the accompanying chart (Chart 1). The membership of the American Medical Association, at present 36,822, is an inner circle of the membership of county societies, while the House of Delegates is a still smaller circle composed of those who have been elected to represent the members of the organization of the whole country.

Now the situation itself is perfectly logical and is in every way to be commended. The trouble is that we have not named our groups accurately. Those whom we now call "members of the American Medical Association" are really those members of the organization who, in addition to supporting their county and state associations, also contribute to the support of the American Medical Association, while for the actual membership of 70,000 members we have no distinctive name.

The change that has been proposed is not a change in condition at all. It is simply a change in name. It is proposed to designate the 70,000 members included in the large outer circle (Chart 2) as "members of the American Medical Association," which they really are and always have been, while those included in the inner circle (that is, those members in good standing of their county and state societies, who also pay \$5 a year to support the work of the American Medical Association) are to be called "fellows of the American Medical Association" instead of "members." This will make no change in the membership standing or relations of any man. If this suggestion is adopted, all members in good standing in their state organizations will be designated as "members of the American Medical Association," while those members who contribute \$5 a year to support the work of the Association will be designated as "fellows of the American Medical Association." In other words, those who are now known as "members" of the American Medical Association will be known as "fellows" of the American Medical Association, while the term "members" will be applied to the entire, combined membership of the component county societies of the whole country.

The Present Situation:



Chart 1

This plan has several advantages. In the first place it will give us a name for the entire membership of the organization, which we have never had before. Before 1901 they were referred to as members of "affiliated" societies, and since then they have been called, for lack of a distinctive name, "members of the organization." Another advantage will be that it will make clear that the voting power lies with the 70,000 members and not with the 36,822 "fellows." When this plan was first proposed, some got the impression that the intention was to compel the 70,000 members of the county societies to become "supporting members" of the American Medical Association, as the term is now understood. This, of course, would be a ridiculous proposition. The proposed change contemplates leaving membership conditions exactly as they are; it contemplates changing the name, and not the relation.

One great disadvantage prior to the reorganization of the American Medical Association in 1901 was the fact that we had no name by which to designate the delegates. As soon as the name "House of Delegates" was adopted, then the function of the delegates became clear at once. The Association also has labored under the disadvantage, ever since its reorganization, that there has been no name by which to designate the actual voting membership, because the term "members" had been ap-

plied to the supporting body. The proposed change simply recognizes this fact, designating as "members" those who really are members, and designating the supporting members as "fellows."

I have already given some reasons for making the change, but there is another and more important; in fact, it is the paramount reason. Up to the present time, the members of the organization have not realized that they are, in reality, members of the American Medical Association. They regard the American Medical Association as something entirely apart from them, something in which they have no interest. These members of the organization are through their elected representatives responsible for what the American Medical Association is doing, or what it ought to do and is not doing, but they do not realize this, hence they are not interested. They do not appreciate that the House of Delegates of the American Medical Association, which they elect, is the body that is doing the work through the officers, trustees, councils, etc., which they through their representatives in the House of Delegates of the American Medical Association, select. While only a change in name, I think the subject is of the utmost importance. I hope that all of you will look into it carefully, so as to understand exactly what is intended, and then will explain it to your members at the first opportunity.

The Proposed Change



Chart 2

SOCIETY REPORTS

CALIFORNIA ACADEMY OF MEDICINE.

The regular meeting of the California Academy of Medicine was held in the rooms of the San Francisco Medical Society on March 24th.

The following scientific program was given:

1. Some new problems in Pharmacology. Albert C. Crawford. Discussed by R. L. Wilbur and Rene Bine.

2. Presentation of three cases of osteoarthritis of spine; two luetic, one Neisser (?). Dr. C. C. Crane. Discussed by S. J. Hunkin and R. L. Wilbur.

Refreshments were served at the close of the meeting.

COOPER CLINICAL SOCIETY.

A meeting of the Cooper Clinical Society was held on the evening of April 7th at the Medical Department of Stanford University. The following scientific program was given:

1. The Diagnosis of Gall Bladder Conditions. Dr. James Eaves. Discussed by Drs. W. F. Cheney and Emmet Rixford.

2. Report of a Case of Puerperal Eclampsia, with Autopsy Findings. Dr. C. B. Moore. Discussed by Drs. A. B. Spalding, W. R. B. Clark, J. J. Hogan and H. R. Oliver.

3. Report of a Case of Pulmonary Gangrene. Dr. J. A. Cutting.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of March the following meetings were held:

Section on Medicine, March 4, 1913.

1. Absence of Brain Tumor Symptoms in Cases of Tumors of the Brain. W. F. Beerman. Discussed by J. Rosenstirn.

2. The Paralytic Type of Ptomaine Poisoning with reference to the Differential Diagnosis from Bulbar Paralysis. E. O. Jellinek. Discussed by Wm. Ophuls and R. L. Wilbur.

3. Subacute Atrophy of the Liver. E. C. Dickson. Discussed by L. I. Breitstein, Wm. Ophuls and J. Rosenstirn.

General Meeting, March 11, 1913.

Psychiatric Duties of Large Cities. R. L. Richards (Medical Superintendent of the Mendocino State Hospital). Discussed by W. F. Snow, F. W. Hatch, D. D. Lustig, C. D. McGettigan, R. L. Wilbur, H. C. Moffitt, H. J. Waterman, Wm. Ophuls, P. K. Brown and H. C. McClenahan.

Section on Surgery, March 18, 1913.

1. Demonstration of Cases by W. I. Terry.

A. Sporadic Cretinism treated by Thyroid Implantation.

B. Case of Gritti Amputation performed three years ago.

C. Thyroglossal Cyst.

Discussed by Sol. Hyman and L. Eloesser.

2. Report of Case of Urethral Calculus in Prostatic Division: Illustrated by Plates and Figures. D. Lee Hirschler. Discussed by W. P. Willard, H. Somers, M. Molony and G. C. Macdonald.

3. On the Differential Diagnosis of Appendicitis and Nephrolithiasis. M. Krotoszyner. Discussed by W. I. Terry, S. O. Beasley, Alfred Newman, R. L. Rigdon, W. A. Boardman, W. P. Willard and S. T. Pope.

Section on Eye, Ear, Nose and Throat, March 25, 1913.

1. Hysterical Blindness and Blindness due to Lesions of Occipital Lobes. L. Newmark. Discussed by W. F. Blake, K. Pischel and V. Hulén.

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held Feb. 28th at the State Hospital. The following members were present: Drs. R. B. Knight, J. D. Young, F. P. Clark, B. J. Powell, J. D. Dameron, Mary C. Taylor, Margaret Smyth, Minerva Goodman, E. R. Brooks of Riverbank and R. T. McGurk. The financial report of the secretary for the year 1912 was read and approved by the finance committee.

Dr. Adelaide Brown of San Francisco was to have read a paper before the society, but was unable to attend, and it was decided to hold a special meeting March 14th, which would be a public meeting, for the hearing of Dr. Brown's paper on the Milk Question.

There being no paper for the evening, Dr. Margaret Smyth showed some interesting cases of Dementia Praecox and one of Melancholia. The demonstrations were very interesting from the viewpoint of Psychiatry. The cases were discussed by Drs. Smyth, Clark, Young and Knight.

There being no further business, the society adjourned to the dining room for refreshments.

R. T. McGURK, Secretary.

SANTA BARBARA COUNTY.

The Santa Barbara County Medical Society met in regular monthly session at the Arlington Hotel at 8 p. m., March 11, 1913. Present: Drs. Barry, C. S. and T. A. Stoddard and Wells, a total of four members. As a quorum was lacking and the amendment still pending to change the constitution making a legal quorum of three members instead of five members could not be passed, only an informal session was held, and general topics discussed. But a resolution was adopted of sympathy for the society's vice-president, temporarily confined at St. Francis Hospital, San Francisco, which was duly telegraphed him per night letter. The meeting then adjourned to await a special call by the president.

March 15.—Special adjourned meeting at call of president. Said special meeting was held at office of Dr. Geo. Wells, on upper State street. Present: Drs. Barry, R. Brown, Morrey, C. S. and T. A. Stoddard, and Wells. A total of six members. The president, T. A. Stoddard, called the meeting to order. No clinical cases were presented, and no discussion of medical practice laws was had other than Dr. C. S. Stoddard seemed to voice the sentiment of the members present in claiming that our present medical law in where it related to practice was a good code and should be let alone. As the regularly elected delegate to State Society had permitted his dues to lapse the president declared his office vacant, and appointed the alternate, Dr. Rexwald Brown, in his place. The society then elected Dr. C. S. Stoddard as alternate delegate. The proposed constitutional amendment making three members a legal quorum was unanimously passed. The society then reinstated Dr. C. C. Park as a member and adjourned to meet in regular session in April, agreeing that the coming session be preceded by social dinner at the Arlington Hotel.

WILLIAM T. BARRY, Secretary.

BOOK REVIEWS

Principles of Hygiene: For Students, Physicians, and Health Officers. By D. H. Bergey, M. D., First Assistant, Laboratory of Hygiene, and Assistant Professor of Bacteriology, University of Pennsylvania. Fourth edition thoroughly revised. Octavo of 529 pages, illustrated. Philadelphia and London. W. B. Saunders Company. 1912. Cloth, \$3.00 net.

The author has presented a volume which covers his subjects in a most satisfactory manner. The style of writing as well as the terseness and accuracy of the text leave nothing to be desired. Each of his chapters is entirely up to date; those on water and sewerage purification, and immunity, being especially modern. The student of hygiene will find this book contains as much accurate knowledge of the subject as is possible to present in a volume of its size.

D. H. C.

"Malaria, Cause and Control." By William B. Herms. Published by Macmillan Co., New York, 1913. Price \$1.50.

Professor Herms has given the practical side of the malaria problem, particularly as applied to our State of California. The malaria parasite is very clearly described as to morphology and life history including its residence in both human and mosquito hosts. The mosquitoes are also well discussed, giving the characteristics of both culicines and anophelines. The methods of control are of great interest and fully explained, including details of several actual crusades against the malaria-carrying mosquito which have been conducted under Professor Herms' direct supervision. There is a lesson to be derived from this modest monograph which will be of value to all who have the health of communities at heart—the simple, direct, comprehensive methods; the arousing of interest in and the education of the people living in the infected districts, the securing of local and state aid, the successful enlistment of school children as effective assistants, the rousing of the public lay press. All these factors are but excellent examples for others to follow, not only in the campaign against malaria, but also in any warfare against other infectious diseases. To repeat, the value of this book lies as much, or more, in the spirit and method in which the work was conceived as in the actual work itself.

G. H. T.

NEWS NOTES FROM NEWSPAPERS.

A new ward has been added to the Sisters' Hospital at Sacramento.

Kings County has a new health officer in the person of Dr. C. L. Scott.

San Luis Obispo has taken an option on a piece of land for a new county hospital.

Tulare County Medical Society met at Lindsay on April 9th and discussed clinical cases.

Several deaths of those who have been inflicted with the Friedmann serum are announced.

Mrs. Rosa Gauragna was sentenced to two years in San Quentin for performing an abortion.

Dr. James H. McBride has been elected a member of the board of education of the city of Pasadena.

Dr. A. W. Morton, chief surgeon of the Santa Fe in San Francisco, recently married Dr. Ada Scott-Connors.

Fowler is to have a sanitarium if the present plans of a number of physicians and other citizens do not go astray.

Ventura County Society held its meeting for March at Santa Paula, the scientific discussion following a banquet.

The Long Beach Physicians' Club entertained Dr. Harvey W. Wiley when he was out this way on a lecturing tour.

Fresno is going to make a great effort to compel all dog owners to muzzle their pets, this summer, and put a stop to rabies.

Merced County supervisors have ordered plans prepared for an addition in the shape of a detention ward, to the county hospital.

Dr. F. E. Trotter, of the Public Health Service (who used to be stationed at San Francisco), has been promoted to the rank of Surgeon.

San Luis Obispo's Emerson Club had the pleasure of listening to a paper by Dr. Stover on the subject of a physician's life and work.

Dr. Carl Renz wishes to state that he is leaving San Francisco for a number of months; his stay abroad will last till the end of the year.

At Colfax a case of rabies, the victim being a boy, has been reported and it is understood that the boy is getting the Pasteur treatment.

Sonoma County Medical Society held its April meeting at the office of Dr. S. Z. Peoples, Petaluma. The subject of Obstetrics was generally discussed.

In Los Angeles the applicants for positions in the city engineer's office are to be subjected to an examination to determine whether they have tuberculosis.

At San Diego, Dr. Frederick A. Cook gave a talk to the San Diego County Medical Society in April; his subject was "Eskimo Doctors and Arctic Diseases." About 45 members attended.

Riverside County Society has developed a very valuable feature; every little while they have a clinical meeting at which every physician present is required to report some case of interest.

Meningitis, of the acute epidemic type, has appeared in the vicinity of Bakersfield and also in the Sacramento valley, though not a very large number of cases have as yet been noted.

Chico had the misfortune to have a number of cases of smallpox in the early part of April and the schools were ordered closed. But let us not insist upon vaccination; some people do not like it.

The nurses of the state have been actively campaigning against the "eight hour bill" as it applies to nurses and for a bill to examine and register nurses and permit those registered to use the letters "R. N."

A torpedo boat destroyer was sent on a new errand about the middle of April, when the "Paul Jones" was rushed to a Mexican port carrying meningitis serum to the "California," on which ship meningitis had broken out.

Friedmann's press agent has certainly stirred things up pretty generally all over the country, but here and there one may find a newspaper that has been honest with its readers and has not printed the "canned" news sent out by the press agent.

Dr. George Tucker of Riverside, who has been in Sacramento during the session of the legislature representing the California Public Welfare League, delivered a number of addresses in various parts of the state during March and the early part of April.

San Bernardino County has the highest death rate of any county in the state and Riverside is second. This is due to the fact that so many persons having tuberculosis in an advanced stage, come to the sunny southland for a little comfort before they die.

Fresno County will suffer a distinct loss in the retirement of Dr. Geo. H. Aiken as Health Officer. Dr. Aiken has turned in his ninth annual report and with it the information that he desires to retire from the work and will not accept a reappointment.

Stockton is to continue the work of medical inspection of school children which has been found to be of tremendous value in that community, in spite of the opposition of a few cranks who do not like to be told that their children are defective or need medical care.

Solano County Medical Society held its March meeting at the Vallejo General Hospital. Dr. W. S. S. Young was elected president for the ensuing year and Dr. A. V. Doran secretary. Dr. Planton Vallejo was elected an honorary member; he is a descendant of the old family of Vallejos famous in the history of California.

HOW GENEROUS!

Pacific Surety Company, San Francisco, Calif.

Schedule of Fees which the company agrees to pay and the undersigned physician agrees to accept for the treatment of injuries received in connection with liability policies of the company.

Minor Surgical Operations.

Contused, incised, lacerated or penetrating wounds, burns, scalds, etc. \$ 2.00

Amputations and Excisions.

Amputation of one or more fingers or toes.. 5.00
Amputation of leg, foot, arm, forearm or hand 25.00
Amputation of leg at hip joint..... 40.00
Amputation of arm at shoulder joint..... 40.00
Amputation of leg at thigh..... 40.00
Excision of shoulder, knee, elbow, wrist or ankle joint 25.00
Excision of hip joint..... 40.00

Fractures

Of bones of hands or feet..... 5.00
Of rib or ribs..... 5.00
Of fibula 5.00
Of scapula, arm, forearm, clavicle, patella or jaw 10.00
Of femur, tibia or both bones of leg..... 15.00
Comminuted fracture of arm or leg..... 15.00

Dislocations

Of bones of hands or feet or jaw..... 5.00
Of shoulder, elbow, wrist, knee or ankle.... 10.00
Of hip 25.00

Eyes.

Removal of foreign bodies from eye..... 1.00
Enucleation of eyeball..... 20.00

Miscellaneous.

Ligature of artery (not in open wound).... 25.00
Trepining of skull..... 20.00
Catheterization 2.00

Instruments, anesthetics, splints, medicines, dressings or anything necessary for the performance of any operations, or for the treatment of injuries, will be provided without extra charge.

When assistance is necessary, one-third of the above rates will be charged for such assistance; the charge for assistant in administration of anaesthetic shall not exceed Five Dollars (\$5.00).

Services not enumerated above shall be charged for at proportionate rates.

Dated at this day of 19...

PACIFIC SURETY COMPANY.

Physician.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-Official Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

Meningococcus Vaccine contains in each Cc. about 1000 million killed meningococci. G. H. Sherman, Detroit, Mich. (Jour. A. M. A., March 1, 1913, p. 665.)

Staphylococcus Pyogenes Aureus Vaccine is marketed in two strengths: 1. Containing in each Cc. about 300 million Staphylococcus pyogenes aureus. 2. Containing in each Cc. about 600 million Staphylococcus pyogenes aureus. G. H. Sherman, Detroit, Mich. (Jour. A. M. A., March 1, 1913, p. 665.)

Staphylococcus Pyogenes Albus and Aureus Vaccine contains in one Cc. Staphylococcus pyogenes albus and aureus each 600 million. G. H. Sherman, Detroit, Mich. (Jour. A. M. A., March 1, 1913, p. 665.)

Pneumococcus Vaccine is marketed in two forms: 1. Each Cc. contains about 40 million killed pneumococci. 2. Each Cc. contains about 100 million killed pneumococci. G. H. Sherman, Detroit, Mich. (Jour. A. M. A., March 1, 1913, p. 665.)

INSTRUCTOR FOR MIRAJ MEDICAL SCHOOL.

A teacher of Physiology, Chemistry, Physics, Biology and Bacteriology is needed to work in connection with the Presbyterian Mission Hospital Medical School and Leper Asylum at Miraj, West India. A man who has a knowledge of X-ray work is preferred.

The medical graduate who is appointed to this position will have opportunities for practice as an assistant in medicine and surgery, though the major part of his time will be taken up with teaching.

Traveling expenses and living quarters are provided in addition to \$50 monthly salary. The terms: a three-year appointment with the privilege of renewal of contract with two or three additional years, if mutually agreeable.

Christian men who wish to investigate this opening should send full particulars regarding their qualifications to Mr. Wilbert B. Smith, 600 Lexington avenue, New York City.

NEW MEMBERS.

Schneider, E. H., Los Angeles.
Speik, Fred'k A., Los Angeles.
Wiser, Frank C., Los Angeles.
Nichols, Robt. C., Los Angeles.
Bittman, E. J., Pasadena.
Steinberg, Jas., Los Angeles.
Abbott, P. F., Oakland.
Du Val Brecht, Nelson, Angel Island.
Zaicheck, Otto., San Francisco.
Kellogg, W. H., San Francisco.
Lander, Chas. J., San Francisco.
Beattie, W. A., Sacramento.
Gottschalk, Adolph, Sacramento.
Reilly, Paul, Vallejo.
Hinchley, J. P., Fillmore.
Thomas, Frank, Los Angeles.
Kyle, John J., Los Angeles.
De Puy, Clarence A., Melrose.
Grimmer, E. M., Irvington.
Shade, M. A., Oakland.
Locke, C. W., Lindsay.
Maloney, R. Lee., San Diego.
Stewart, A. C., San Diego.
Jennings, Chas. R., Los Angeles.
Callnon, John W., Chino.
Platt, I. S., Los Angeles.
Clarke, R. M., Covina.
Griffith, H. M., Pasadena.
Rees, H. C., Los Angeles.
Schwuchow, W. B., Los Angeles.
Rosenberger, J. A., Big Creek.
Little, Thos. Coe, San Diego.
Jackson, Jas. A., San Diego.
Larzalere, J. V., Escondido.
Croat, E. A., San Diego.
Reid, R. S., Oceanside.
Crabtree, E. H., San Diego.
Hartwell, Robt. Wm., Dos Palos.
Campbell, Frank McLean, Oakland.
Moore, D. S., Los Angeles.
Peck, Jno. W., Berkeley.
Park, C. C., Santa Barbara.
Holgate, C. E., Los Angeles.
Mixsell, R. B., Pasadena.
Haight, Harry Wm., Los Angeles.
Reber, W. W., Inglewood.
Samaneigo, J. A., Los Angeles.

DEATHS.

Cameron, Jas. S., Red Bluff.
Cook, Wm. V., Los Angeles.
Crumpton, H. J., Oakland.

California State Journal of Medicine.

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be
Typewritten.

Notify the office promptly of any change of address, in
order that mailing list and addresses in the Register may
be corrected.

VOL. XI JUNE, 1913. No. 6

EDITORIAL NOTES

PERSONAL MENTION.

Out of the legislative mess of the last four months or so, a few personalities protrude with more than usual distinctness. Let us take the pleasing ones first. Dr. George E. Tucker, of Riverside, was the representative of the California Public Welfare League, an organization largely made up of laymen who want good medical laws, and spent practically all of his time at Sacramento during the sessions of the late demented legislature. He worked with untiring energy to prevent destructive legislation; he was helped with the wise counsel of Mr. H. T. Morrow, our attorney in Los Angeles and a gentleman who is much interested in the Public Welfare League from the layman's side. They both did everything humanly possible to stop the trend of destructive legislation, but it was a hopeless, heartbreaking task—and a vicious bill, Senate 813, was passed. This "bifurcated" bill, with its provisions for "physician and surgeon" certificate and for "drugless practitioner" certificate is the result of one man's mad desire to have this "bifurcated" legislature pass an "ideal" medical practice act. This person, Assemblyman H. A. Peairs of Los Angeles, Chairman of the Assembly Committee on Medical and Dental Laws, with the little knowledge gained from a slight association with medical matters, attempted to do the one thing that was neither desired nor required. Against argument and reason and backed only by a smattering of knowledge gained from a little and unfinished study of medicine, some experience in teaching school, a little

practice of law and God only knows what else except an exalted ego, he produced the monstrosity which it is hoped may never become a law of this state. It is understood that this person's egotism led him to attempt radical revisions of other important laws but that his fellow members of the Assembly happily became convinced that he was a "Jack of all trades and master of none" and refused their consent.

LEGISLATIVE ENACTMENTS.

Quite a number of public health bills that did not touch upon the "administrative policy" one way or the other, were passed. Whether they will be signed or not of course remains to be seen. When the thirty-day period is over and things are finally settled, they will be discussed. It may be said, however, that all the bills prepared by the Tuberculosis Commission (they will be found in the report of the commission published in this issue) were passed. Nearly all the bills proposed by the State Board of Health, we understand, were also passed. Later on it will be possible to give some idea of the nature of such of these bills as become laws and what may be expected to result from them.

NEW STATE INSANE ASYLUM.

The legislature, which might well be called the latest experiment in state insane asylums, has adjourned with a record never equaled anywhere at any time. It is conservatively estimated that it will take California at least fifty years to get over the damage done in the last four months. The philanthropic suggestion of Mr. Johnson in his gubernatorial message to the assembled lunatics when they began their banderlog play last January, to the effect that any physician licensed to practice medicine anywhere in the United States ought to be given a license in California without further formality, had its due effect;—some thirty bills amending the medical act or creating new medical laws were introduced; they were nearly all bad; destructive. The prize freak that finally passed, in spite of protests from every school of medicine, and from every element of the community, was Senate bill 813. It is a heart-breaking task to discuss it; it will be found printed in full on another page. It is seldom that a supreme court says anything is good; but the Supreme Court of California went out of its way to say that it was a wise provision of the legislature (of 1901) to make the standard of the Association of American Medical Colleges the minimum standard for medical education in this state because it is a flexible standard. This "wise provision" the legislature of 1913 has eliminated! There are some parts of this bill which may seem good to you as you read it; but do not be fooled—it is as full of holes and bugs as an infected sponge. Whether the governor will sign the bill or not, is now the all-important question.

"THE MERMAIDS AND NEPTUNES."

Honest, that is not a joke; it is the name of a new "dollar-a-month" health benefit, medical treatment, contract practice "order." It has a nice, cute little joker in it—in addition to the general rottenness of the whole scheme of the "dollar-a-month" thing. The prospectus, or whatever they call the leaflet, says: "You are permitted to call physician of your choice, together with method of treatment, the Aquarium paying the doctor's bill for you, in the majority of cases enabling the member to call their family physician." (*Sic.*) On inquiry, however, it is elicited that the member can call his family physician—*provided the family physician is a "Neptune"*—a member of the "order." It certainly is a scheme with some cute additions to the general "lodge practice" game; the physician is not paid a salary but his bill against a member is paid by the "Aquarium"—with limitations as to amounts. Therefore quite a few foolish doctors are going to be induced to join, for if one is not a member his patient, who may be a member, can not have him but must have some physician who *is a member!* Everybody works the doctor—he's so easy!

THE AMERICAN ROYAL SURGICAL EMPORIUM.

It was started, just as scheduled, in Washington, last month; it is called, we believe, the "American College of Surgeons." Finney, of Johns Hopkins, is reported to be its president, and Matas, of New Orleans, its vice-president. And then there is a Board of Regents to cherish its early years and get its nice little feet directed in the right direction! And shortly the fun will begin. Who is a surgeon? What is a surgeon? "Why am I not entitled to belong to this holy organization; I once shook hands with Murphy and have removed ingrowing toe nails? Am I not a surgeon? Who shall say that I must be deprived of the glory of adding those mystic letters to my name? I was excluded from the original lists of the elect merely through jealousy; I am too good a surgeon; everybody is afraid of me and so they keep me out! Odds bodkins! Gads zooks!" And what in the world is the matter with all the "internists"? Are they asleep at the switch? Are they going to let the surgeons, Murphy-Martin directed, put it all over them again? Are they not going to organize an American Royal College of Physicians? Is there to be no way in which a plain, ordinary, self-respecting physician can add a bunch of letters to his name and thus become a better doctor? It is pitifully scandalous to see such lack of energy; such inertia. Are there no great leaders among the physicians—the "internists," as they love to malign themselves? "Up and have at them!" Let us organize the "Internists' National Society Absolutely No One Excluded" and then John Jones may sign his name and have his cards printed "John Jones, M. D., I.N.S.A.N.E." And then let's all join the "Holy Rollers!"

THE FRIEDMANN-PIORKOWSKY-HEID MESS.

And now this poor United States is to be exploited again on the lines of the old "Keeley" cure fake. "Friedmann Institutes" are to be established in the various states and *in these "institutes" only* may tuberculous patients be given the "Friedmann serum" or "vaccine." In a circular letter sent out by the "Friedmann Institute of New York" we read that "Dr. Friedmann's vaccine is of such a nature that it can not be shipped." Exactly; it can not be shipped from one state or territory to another state or territory for the reason that it is not manufactured under a government license and hence is not permitted in interstate commerce! In order to get around this difficulty, and still further commercialize the whole proposition, the various states are to be supplied with these "institutes"—and incidentally, each will probably pay a royalty to the parent grafting institution and to Friedmann. A number of physicians in California have been fooling with a serum supposed to be the same as the Friedmann serum but manufactured by one "Dr. Piorkowski," shipped into this country to a Dr. Heid of Pittsburgh, it is said, as "samples without value," and sold at an enormous price to some of our confiding colleagues. Thank the Lord for the Public Health Service! In a letter recently received from the Surgeon General of that service is the following reassuring sentence: "In accordance with the law and regulations issued thereunder, the entry at Philadelphia of a consignment of the preparation to Dr. Heid has been prohibited by the Secretary of the Treasury." But what sort of madness has led many apparently sane physicians into squirting this unknown "Piorkowski" stuff into their trusting patients! And the game of coining into dollars the last drops of the heart's blood of the poor tuberculous, will now go merrily on at the "Friedmann Institutes!"

WHAT'S THE USE?

"What's the use?" is the beginning and the ending sentence in an editorial published in the *Journal of the Tennessee State Medical Association*. "The General Assembly now in session has been deluged with measures of every conceivable kind intended to lower professional standards and render the public still more easy prey for the multiplying cults, each of which loudly proclaims itself the sole possessor of knowledge and truth." The Chiropractics got a bill through recognizing them in Knox County and it is stated that a petition was presented, endorsing these quacks, and signed by a number of regular physicians and members of the State Association! Things must be a little worse in Tennessee than they are in California, and God knows, they are bad enough here!

"CHIROPRACTIC" MODESTY.

Some people are really so terribly modest that it is a mystery how they can live, or even be willing to live, in a world so filled with pushing braggarts and rampant commercialism. For example, note the modest list of things that E. R. Blanchard, D. C., (graduate chiropractor) intimates that he can cure: "Adhesions, anemia, asthma, appendicitis, blood poison, bronchitis, backache, biliousness, catarrh, constipation, chills and fever, diabetes, dropsy, dizziness, drug and liquor habits, diarrhoea, deafness, eczema, eye diseases, female diseases, gallstones, gravel, goitre, hay fever, headache, indigestion, lumbago, locomotor ataxia, malaria, nervousness, neuralgia, paralysis, piles, pneumonia, rickets, ruptures, rheumatism, St. Vitus' dance, suppressed or painful menstruation, scrofula, tumors, worms, bed wetting and other child's diseases, leucorrhoea or whites, stricture, emissions, impotence and many other diseases." This is almost as long a list as that compiled by the wealthy and admired Law brothers in connection with what they say they can cure with the wonderful Viavi, that prize of all fakes!

INSURANCE COMPANIES' LIES.

Nearly all the insurance companies that are writing indemnity insurance for physicians—insurance against malpractice suits—have been writing and continue to write lies about the Medical Defense of the State Society. And when they do not write absolute and actual lies, they write such clever half-truths that the idea conveyed is just as distorted as though a direct lie had been stated. The latest such contemptible trick that has come to our attention is a statement in a letter written on the stationery of the "Medical Protective Company" and signed L. Frank. It is written to a member of our Society who decided to no longer pay tribute to an insurance company when he could see clearly that the State Society was giving better protection than any or all insurance companies. He stopped his policy and they teased him to renew it. In the letter mentioned is the following phrase: "The entire sum collected under Society arrangement would not even employ our competent attorney to give his entire attention." The idea they seem to wish to convey is that they have an unusually good attorney who is paid a large sum to give his entire time to the work in the locality in which the insured resides; that is a lie. The State Society attorneys are winning cases all the time—and the insurance companies are losing them! Our attorneys have given such hard and careful study to this work that invariably, when several attorneys have been connected with the defense of a suit of this character, some of them representing insurance companies, our attorney has been asked to take charge of the case. Medical Defense by the State Society means actual defense; medical defense by an insurance company means half-hearted defense—if the company can not get out of it entirely, on some technicality! We have taken care of at least a half dozen suits

in which the physician was insured in some company, but the company got out of it under a technicality.

AMERICAN MEDICAL ASSOCIATION MEETING.

The annual meeting of the American Medical Association will be held in Minneapolis June 17 to 20; the House of Delegates will meet on Monday, the 16th, the day before the opening of the scientific sessions. It is anticipated that this will be a very large meeting and those who intend going had best be sure that they make hotel reservations in advance. The railroads have agreed upon a round-trip fare from San Francisco and California points of \$75.70—somewhat more if the trip via Portland, etc., is taken. No validation of tickets will be required. For full details of the arrangements, etc., see the *Journal A. M. A.*, May 10, 1913.

LACK OF SUPPORT.

An eastern advertiser of an article of general use, not intended for physicians exclusively, recently tried the experiment of advertising in a number of medical journals for six months. During that period of six months undoubtedly many of our members bought articles similar to, though possibly not as good, as the one that was being advertised in your *STATE JOURNAL*; yet the advertiser writes, in answer to an inquiry as to whether he had found his advertisement profitable, "returns from our recent advertising campaign do not warrant the renewal of our contract." That means lack of support. If you would take the trouble to look through the advertising pages of your own *JOURNAL* you would find that nearly everything you may want is therein advertised; and if you would deal with your advertisers—and let them know that you are doing so and taking an interest in them—such an answer would not have been received in this particular case; the advertiser would have continued to help support your *JOURNAL*. Everything you see in the advertising pages of your *JOURNAL* is good—remember that. Also remember that the more interest you take in your advertisers, the more interest they will take in your *JOURNAL* and the better journal you will have. But improvement can not come by just sitting back and paying no attention to what is going on and ignoring those who are helping you. Think it over.

"THE TEA BEE."

This is the name of a clever little publication that began its printed life in February and is made up and published entirely by the colony of tuberculotics at Colfax, California. To any one really doing something—or trying to—it is always of the greatest interest to get the other fellow's opinion, point of view. To the physician treating tuberculous patients it must be interesting and profitable to get the patient's point of view on a whole lot

of things; and of not the least importance, his unconsciously expressed views when he begins to write about things that interest him. Moreover, the idea of starting this little sheet is a good one, for it gives the lonesome tuberculositic who is trying to get well and to find things to think about and to do—something of interest to engage his time. The very first number fired some hot shot that started a lot of things in a tuberculosis institution in San Francisco—and with good results. The subscription price is fifty cents a year; address, The Tea Bee, Colfax, Calif.

A PHYSICIANS' TELEPHONE EXCHANGE.

In the *Journal A. M. A.* for April 12, there is an editorial with the above title which begins with this sentence: "In some respects, Europe is a little ahead of us." This is said in connection with a few words descriptive of physicians' telephone exchanges in Vienna and Berlin and possibly elsewhere. There has been one such exchange in San Francisco for a number of months and we understand that one has been started in Los Angeles and another is to be started in Oakland. It is difficult to see how one could get along without such an exchange, after he has once become acquainted with it. No one can tell everybody he knows or every one who may possibly want to telephone to him, just where he is going to be from time to time; but he *can* let the exchange know and he can tell people to locate him through the exchange. That is the whole idea; to have one place where some one will be on hand, night and day, every minute of the time, to keep track of your whereabouts and get you in touch with any one who wants you. For emergency purposes, too, it should prove to be of the greatest value. A doctor is wanted in a hurry at a certain location. The operator of the exchange is notified and then goes through the list till a physician is found who is available and thus a lot of time, which may mean a life, is saved. And the work can be done at a very moderate expense.

WASSERMANN REACTIONS.

In a recent issue of the *JOURNAL* was an editorial bearing upon differences of Wassermann reports from various laboratories. This protest is well taken and it is admitted that discrepancies in laboratory reports on complement fixation properties of serums are too frequent to be overlooked. There are, however, a number of factors that tend to withhold the reaction from a position of precision. Most of these sources of error are controllable. On the other hand, the reaction when properly performed, stands to-day as one of the most interesting and valuable methods of laboratory investigations. To be sure, it is a relative pathological test, quantitatively specific. It depends for its results upon the assay of an indefinite body, measured by an accidentally applied and misunderstood phenomenon. Nevertheless, so absolute has been the conformity of end reactions in most similar instances that we are warranted in accepting the manifestations of such phenomenon even

if its bio-chemical basis has not as yet been established. Rather than indulge in verbose argument, I shall confine my impressions of the reaction from the standpoint of the laboratorian, in frank statements.

The Wassermann reaction is a mechanical procedure, finally interpreted through visual manifestations. So well is mechanical error checked by controls, that only through self-deception can this error be committed. A considerable variation of technical application exists with different workers. These are unfortunately all termed "Wassermann Reactions." On the other hand, certain selections of factors are arbitrary, providing that the principle of the original technic be adhered to. But when applied, the method, or name of modifier should be mentioned.

The only permissible modification of the Wassermann reaction, and this has enhanced the value of the test, is in the selection of antigen. The first antigen suggested was a watery extract of syphilitic liver. Then alcoholic extracts of healthy organs were demonstrated as being of equal or greater potency. Then lipoids extracted from normal and luetic organs have been proven to be even more efficacious. The latter has established itself with all workers. On the other hand, antigen, regardless of its character, must conform with strict and definite requirements. The titre of its complement binding unit must be established with a number of specific serums and multiple units must be proven not to be anti-complementary with normal serums. These facts must be re-established with every test.

An inherent error with the Wassermann reaction is the possibility of several units of anti-sheep hemolysins being natively present in some serums. The work of Muir and Noguchi has shown that multiple units of amboceptor have the power of dissociating complement when but loosely bound by few anti-bodies. A reaction that should be positive gives a negative rendering. Bauer attempted to modify the Wassermann by utilizing these hemolysins instead of those artificially created by rabbit injections. As most serums contain no hemolysins such a modification by itself is obviously useless. It stands, though, as an admirable control and no Wassermann "set up" should be considered complete without tubes according to Bauer's system. The fault that Noguchi found with the Wassermann system was with these anti-sheep hemolysins. His modification was the result, but with his elimination of this error he added another which oversensitized the test. The application of the Wassermann together with the Bauer system embraces all the virtues of the Noguchi method and eliminates its source of error.

A serum submitted to various laboratories employing the strict Wassermann technic, should report similar results without the slightest variance. Most Wassermann reactions are either frankly positive or frankly negative. A positive reaction is more specific for syphilis than is the Widal reaction for typhoid. The latter test has no prescribed conventions, and the laboratorian is left to his own fastidiousness. The test bears practically the same

declarative position as does the demonstration, or want of demonstration of the tubercle bacilli to a tuberculous process. The serum from a syphilitic may at any time in the course of the disease give a negative reaction. On the other hand, there can never be an accidental positive reaction with the serum of a normal individual.

Positive findings have been reported in some cases apparently non-syphilitic. With the exception of leprosy, I think that we have grounds for the assumption of existant distinct pathological entities, or that a deviation of technic was indulged in. In only one instance have I seen the report embrace the complete protocol of the reaction.

A vital and frequent error committed by the serologist is in reporting borderline reactions. Here the personal equation becomes a strong factor and the reader confused by a questionable or tardy hemolysis. These reactions can never be justly interpreted without a complete knowledge of the case in question. The only safeguard to the serologist is to submit a description of such reaction and withhold any opinion unless properly consulted. Interpretations of reactions cover a considerable range. Citran's + and — designations are not sufficiently delicate and should be discarded. The clinician ought to be familiar with the principle and procedure of the reaction. A complete description of the behavior of a given serum as is demonstrated in the reaction should convey a far more intelligent idea than the mere report of positive or negative findings. The deductions and interpretations should rest solely with the clinician, unless the history, clinical aspect and previous treatment be reported to the serologist. The source of error begins with the taking of the blood. When the clinician undertakes this he shares the onus of responsibility with the laboratorian.

The clinician has the freedom of observing the methods of his laboratorian. By devoting a little time to the study of hemolysis and the phenomenon of complement fixation, and noting the methods of procedure, he will do more to further his knowledge of this interesting reaction and be in position to more comprehensively correlate laboratory reports with his clinical findings. He will also be in better position to judge the fitness of his serologist.

E. A. V.

EDITORIAL POLICY NOT ENDORSED.

The editorial note in this issue of the JOURNAL entitled "New State Insane Asylum" is, in my judgment, unfair to the many members of the legislature who worked hard and conscientiously to prevent the passage of bad medical legislation and who worked for high standards, and is published in spite of my protest.

GEORGE E. TUCKER,
Chairman Committee on Public Policy
and Legislation.

Gladly published by P. M. J.

SOME "REMEMBERS."

REMEMBER THE MEETING OF THE
A. M. A. IS AT MINNEAPOLIS, JUNE
17 TO 21.

REMEMBER TO LOOK THROUGH THE
ADVERTISING PAGES OF YOUR
JOURNAL.

REMEMBER TO SEND US YOUR
CHANGE OF ADDRESS PROMPTLY.

LOOK THROUGH THE MINUTES OF
THE OAKLAND MEETING; MANY
IMPORTANT THINGS WERE DONE.



OLIVER D. HAMLIN, M. D.
(President, 1912-1913.)

Dr. Hamlin was born in Alameda County, California, April 1st, 1870. After going through the public schools, he entered Santa Clara College, graduating in 1890. In 1891 he entered Cooper Medical College, of San Francisco, and graduated from that institution in 1894. He began active practice immediately as resident physician of the Southern Pacific Hospital in Oakland, Jan. 1st, 1895.

Dr. Hamlin was a member of the Oakland Board of Health for eight years and president of it for six years. He also served as surgeon of the Deaf, Dumb and Blind Institution of Berkeley.

He is now Chief Surgeon of the Emergency Hospital of Alameda County, Division Surgeon of the Southern Pacific Co., Prof. of Operative Surgery of the Oakland College of Medicine, past President of the Alameda County Medical Society, past President of the Alumni Association of Cooper Medical College, and past President of the Pacific Coast Association of Railroad Surgeons.

Dr. Hamlin married Miss Elizabeth McMahon of San Mateo. They have one son, Oliver D. Hamlin, Jr., 20 years of age, now attending the University of California. His father was an early settler of California, coming to this coast in '49 by the way of the Isthmus.

PRESIDENT'S ADDRESS.

By O. D. HAMLIN, M. D., Oakland.

In considering the relation of medicine to the whole people, we find a most peculiar and anomalous condition. Never has scientific medicine been called upon by governments, by communities, by the thinking element of the people, for such monumental services, for such distinct advances, as during the past few years and at the present time. On the other hand, never has the art of the practice of medicine by the average practicing physician been in such disrepute. Medical science as found in the research laboratory, the high-class teaching hospital, the properly equipped and up-to-date medical school, is in a unique position of official respect and individual admiration; medical practice of the every-day sort seems to be the storm-center of a riot of attacking, warring fanatics. The two classes of medical effort seem to be occupying the extremes of favorable and unfavorable public recognition.

Individuals are endowing liberally the centers of medical science, of research, while the mass of the people are opposed to any legal provisions which would require a proper medical education as a preface to the treatment of the sick or afflicted. In nearly every state opposition is being made to laws requiring a reasonably high standard of medical education and the trend of effort is to reduce rather than to raise the requirements which were originally intended to, and actually did, protect the people from having their ignorance exploited at the cost of their health and their lives. In California we find a condition never before noted in any state; in the present legislature there are some thirty bills dealing with the licensing of persons to treat the sick or afflicted in one way or another, and with the exception of three bills, prepared by our own attorneys, all of these proposed measures are destructive and not constructive. The objective of all of these measures is to make it possible for individuals or classes to receive the police permission of the state to practice some form of medicine without producing satisfactory evidence that they are qualified to do so. It is not necessary for us to waste time in considering the matter of the words used by these individuals or classes to designate schools, methods, sects, forms of healing-effort; it does not matter whether it is prescribing or praying, medicine or manipulation, spine-tapping or operation—we, as physicians, know the real facts—that many uneducated and unqualified persons wish to make a living by getting money from the sick or afflicted, the easiest of human prey.

What shall be our attitude toward this condition of antagonistic unrest; this apparent objection of the people to a forced protection of themselves from ignorant, false pretenders? We can lead with reason, with instruction, with an effort to instill the truth. But can we force upon the whole people any measure, no matter how completely and entirely it is intended for their own good? Must not such protective measures—measures intended for the protection of the people themselves—be demanded by and enacted by and through the wish of the people rather than the wisdom of the medical profession?

In our humanitarian efforts and strenuous exertions to secure for the protection of the people measures which require more and more medical education, more and more preliminary training before one may be permitted to make a living by treating sick people, to what extent are we injuring the cause for which we are honestly and with the noblest motives, striving? Do not we, as physicians, when we undertake to force such protective measures, really get in the way of our own endeavor? The layman who is active for or against any particular piece of legislation, does so because he has a personal interest in it. He regards every similar effort in a similar way. When he sees physicians active for or against any piece of legislation his first and natural thought is that the physician must have a personal interest in it; and to him a "personal interest" is synonymous with financial interest.

Let us think, for a moment, of some of the underlying sociologic factors involved. No artificial law will ever triumph, in the long run, over a natural law and it is a natural law that no class can, for long, assume the obligations which properly, and by natural law, belong to another class. When such assumption goes too far, equilibrium is destroyed and some change takes place. It is the natural obligation of the individual to protect himself against medical ignorance; it is by no means the duty of the medical practitioner, be he savant or quack, to protect the lay individual against the medical class—his own class. It is true that the medical class, realizing the danger when the lay class did not, assumed the obligation of creating protection for the public against medical ignorance and quackery; but was it not an assumption of an unnatural obligation? The less can not contain the greater and the medical class is a very small part of the whole community.

Would it not be a wise undertaking for us, as a learned society and a small class-element in the community, to confine our efforts to the education of a number of lay citizens and influential men in all parts of the state and allow such legislation of a medical-restrictive character as the people may demand, to come from the public? In other words, has not the time now come when we should confine our efforts to educating the public as to the facts and then allow this educated public to protect itself in any way that it may see fit?

Should we not exert every effort to make our county medical societies real centers of medical education, firstly, and secondly centers of general education and public instruction?

Another form which the expression of this general feeling of antagonistic unrest toward the practice of medicine has taken, is exceedingly important to us as physicians and as members of this Society. It is the enormous increase in the number of alleged malpractice suits and the bitterness and aggressiveness with which they are fought. Truly, the public seems to have been seized with a mad desire to "sue the doctor." If the patient is not immediately cured of some incurable condition, "sue the doctor"; if a fracture has an unesthetic result impossible to prevent, even though function is good,

"sue the doctor"; if the patient does not coincide with the physician's diagnosis and treatment, "sure the doctor"; and more particularly, if the patient does not care to pay his bill, threaten to "sue the doctor," and do so, if he sues to collect his bill.

We, in California, are not the only ones cursed with this crop of blackmail suits; the number of them is increasing in almost every state in the country and with the exception of a very few exceedingly rare instances, the suits are unjust and without any foundation in fact. In practically every case, the result has been as good as could be expected under the circumstances. The law does not demand that every physician shall be an expert or a specialist in everything; it demands that he shall have ordinary skill and ability. It should go a step farther and demand that the patient exercise ordinary common sense.

I do not intend to go into the details of the Malpractice Defense work of our Society, for these will be presented to the House of Delegates by the Council in its report. But there are several points of great interest in connection with it that I desire to call to the attention of the whole Society.

First. Our legal department has been very much more successful in defending these suits during the past year than has any insurance company. It may be that the insurance companies have been unfortunate in the character of the suits they have been called upon to defend, or it may be that their defendants have really been negligent. Whatever the reason, the fact is that a number of suits in which the defendant was not a member of our society but was insured and was defended by the attorneys of an insurance company, have been lost, the judgments varying in amount up to \$3,500. It has been made manifest that the Medical Defense of the State Society is real defense and is probably better than the protection of an insurance company.

Second. We must continue the work energetically and we must provide sufficient funds to do so and to do so properly. There is nothing more expensive than a cheap lawyer. Even if it should become necessary to raise the assessment for this work to two or three dollars, the amount paid by each member will be only a small portion of the sum he would have to pay for insurance which would be a less successful protection. It is idle for any member to say that he has never been sued and does not fear that he ever will be. At the rate that these suits are increasing, no member is safe in the treatment of any patient; any one of us is liable to be made the defendant in a suit at any time. I may refer to one case in which the physician had attended the family for years; his patient, a woman, left his office one afternoon, apparently as satisfied with her physician as she had been for years, and the next day filed a suit for damages against him.

Third. We must do everything in our power to discourage the beginning of such suits. We should be ever watchful of our criticism of a brother physician; we can not know all the facts in the case and it is unfair, to say the least, to criticize anyone unless all the facts are known. Many a suit

has been brought as the result of an idle and ill-considered criticism of a brother physician's work. Many more are brought as the result of envy, jealousy or anger. Indeed, it has been said that behind every malpractice suit will be found skulking some jealous physician. If we will keep these things in mind we will do much to head off many cases of this legal blackmail. In many cases a discontented patient consults another doctor in the hope that he will say something in the way of criticism or censure that may be used as the basis for a suit.

Fourth. In serious cases, or in cases which we think may give rise to trouble, we should endeavor to have another physician see the patient at the time of examination and treatment. This is particularly important in all fracture cases, and especially in fractures near joints. There are a good many surgeons who will not, under any circumstances, treat or set a fracture unless another physician is present and agrees entirely in the treatment and diagnosis. It is self-protection.

This condition of unrest; of antagonism to things relating to medicine in its legislative control and in its every-day practice, will doubtless increase for a time; how long, it is, of course, impossible to say but probably two or three years will see a change. If we do our best to fulfil our duty as teachers, as physicians in the broadest sense, we may expect that the thinking portion of the community will, in a reasonable time, see to it that order is again restored and that the present chaos is abolished.

REPORT OF THE SECRETARY AND EDITOR.

To the President and Delegates:

Membership. At the close of 1911 there were 2118 members of the State Society; at the close of 1912, there were 2278 members, an increase of 160 during the year 1912. During the year 23 members died and 16 resigned, making a loss of 39 in spite of which loss there was a net gain of 160. The change in the by-laws relating to the payment of dues has had an excellent effect. On March 10th, 1913, three county societies had paid in full the same amount as last year, reporting the same number of members; 10 reported and paid for an increased number of members totaling 29; 22 county societies had not reported and paid for as many members as last year totaling 180; since that date a number of names have been reported and the delinquents have nearly all come in. At the same time last year, little over half of the assessment from county societies had been paid, so you can see the result of the stringent ruling that assessments must be paid by March 1st.

The Glenn County Medical Society, a new unit, was organized during the latter part of 1912 and began its official life with the report of members and payment of assessment for 1913.

It has been suggested that, as membership in a county medical society will probably come to mean more and more of distinction, some sort of button should be designed and sold by the State Society, at cost, to its members, so that the public may be

able to know which physicians are recognized as of standing and hold membership in the society. It has also been suggested that an annual membership card be issued, the size and general style to be much the same as the certificates of membership issued by the American Medical Association. There questions are respectfully referred to you for consideration with the request that in dealing with them you bear in mind that to do these things will add somewhat to our growing expenses.

Publications. The financial side of the publications of the Society will be reported by the Chairman of the Council; a statement was published in the March number of the JOURNAL. In brief, it may be said that the Register and Directory just about pays for the actual cost of printing and distribution. The JOURNAL showed a net profit of \$4,043.73 which we may safely expect to see slightly increased during the present year. It is gratifying to note that the quality of the papers submitted for publication during the past year was distinctly better than in some previous years. However, it must not be forgotten that unless our members submit their best work for publication in their own journal, that journal will not be of as high a grade as it might be. The improvement in the quality of papers during the last year has been repeatedly noted and commented upon.

Discussions. The cost of securing discussions of papers at the last meeting came to something over \$4.00 per printed column, which amount, in view of the quality of the matter contained in most of the printed discussions, seems to be excessive. It is for you to decide whether stenographers shall be employed, in the future, or whether members shall be advised to write out their remarks and send them to the JOURNAL, if they wish them to appear in the discussions.

Locations. The work attached to keeping track of openings for physicians, those who wish to change their location, sell practices, etc., has grown tremendously and now takes nearly all the time of one clerk. Through our office we are filling positions for physicians with steamship and railroad companies, mines, lumber companies, construction camps, hospitals, etc., and the results seem to be distinctly satisfactory. In many instances we are offered money for this service but I have invariably refused to accept any commission or payment of any sort; it is a service which the Society should do for its members, but the responsibility which would attach to the Society if any money were received for the service, would be too great. I sincerely trust that this policy will be officially approved by you.

PHILIP MILLS JONES, Secretary.

REPORT OF THE COUNCIL.

To the President and Delegates:

As Chairman of the Council I appear before you for the eleventh time to present our annual report. At the session of 1902 the present form of our organization was adopted and the House of Delegates and the Council, as governing and directing bodies, were created. The first meeting of the Council was held July 18th, 1902, and the

68th meeting was held April 14th, 1913; during the eleven years there has been but one meeting at which there was not a quorum present.

Our condition at present as compared with what it was at the beginning of the work of the Council, is a matter of pride and congratulatory reflection. At the first meeting of the Council, much of our time was taken up with a discussion of whether we could or should start a journal and whether it would wreck the Society! To-day this seems absurd to us, for we have seen the JOURNAL, under the management of Dr. Jones, grow steadily till it paid its way and then keep on growing till now it pays a handsome profit—a larger actual profit than any other state journal published. And I presume to call your attention to the fact that the very first number of our JOURNAL, at Dr. Jones' instigation, started the fight against nostrums and dishonest proprietary remedies and that the policy of clean advertising which was then established by your editor and your publication committee and endorsed and approved by your Council set an example which was later followed by the *Journal* of the A. M. A. and by a number of state journals and a few privately owned journals. It took a good deal of faith and confidence and a great deal of hard work to pull through the early years, for we began with a handful of members and less than \$800 in money.

It is pleasant to recall the anxiety and the worry of those early years, for our present condition justifies our early faith in the policies then laid down. Each new undertaking that we added to our activities has at first been more or less of a heavy burden but each has been successfully managed. Our publications are no longer sources of anxiety, but our latest work, our medical defense, while it has been unexpectedly successful in protecting our members has, through force of circumstances which will be discussed later, become a decided problem and one the solution of which we must approach with careful thought.

The condition of the work in the several lines of our business activities is herewith presented for your consideration:

Register and Directory. The Register is just about paying for itself and we believe that is as much as can be expected. By this we mean that the advertising just about pays for the paper, printing and distribution; none of the cost of compilation is charged against the Register for the reason that it is an essential part of the work of the Society's office to keep track of the whereabouts of physicians in the state and the work would have to be done whether we published the book or not. This year we are selling more copies than ever before and we feel that the edition for 1913 may show a larger increase of receipts than heretofore.

JOURNAL. The income from the JOURNAL continues to increase somewhat and shows a satisfactory growth. All the figures will be found published in the report printed in the March number. It is to be regretted that County Society Secretaries will not send reports of the meetings of their societies. In a few cases this is done but

most secretaries do not seem to realize the value it would be to their societies to have the reports of the meetings in the JOURNAL. We wish to extend our thanks to Dr. Bering, Chairman of the Advertising Committee, for his efficient work.

Medical Defense. The most important matter of business now engaging the attention of the Council is the Medical Defense feature of our work. The JOURNAL has referred to the fact that suits for alleged malpractice are increasing steadily in all parts of the country and notably so in California. Most of these suits are without any shadow of foundation in fact and for that very reason they are the more dangerous. It is incumbent upon us to defend these suits most energetically, for every time a verdict is given against a doctor, other persons are tempted by greed to do likewise and attempt to get some "easy money" by suing the doctor for damages.

In starting this work, in July 1909, the plan that the Council adopted and that was unanimously endorsed by the House of Delegates at the meeting of 1910, was the co-operative assessment plan. We could not know what the work would cost but all indications were that it would not cost more than one dollar a year per member and the assessment was therefore set at that amount for the first three years, it being generally understood that by the end of three years we would be in a position to know more definitely something about the expense. This amount much more than covered the cost of the work in 1909, 1910 and 1911; but with the end of 1911 and the beginning of 1912 conditions changed materially. More suits for damages were filed in 1912 than in all the previous period (23 suits were filed), and the cost of conducting the work rose to a sum decidedly above our income on the basis of one dollar per member. The increase in the number of suits for damages for alleged malpractice has been repeatedly remarked upon in our own JOURNAL and in the journals of other state societies. We are advised by our attorneys that there will probably be a large number of suits during the next two or three years, as conditions of this kind come in waves, last a certain time, and then subside.

Assessment. In view of these facts, your Council recommends that the assessment for 1914 be fixed by you at not less than \$5 per member and that the Council be authorized to make an additional assessment of \$1 per member for the year 1913, if it shall become necessary to do so in order to carry on the work properly till the end of the present year.

All the accounts of the Society for the year 1912 were carefully audited by certified public accountants and the report of the auditors, McLaren, Goode & Co., was published in the JOURNAL for March so that all members of the Society might have an opportunity of reading it before coming to this meeting. In the same issue of the JOURNAL was given an analysis of the affairs of the Society for the last six years. The statement shows a steady, substantial growth and sound business development.

MINUTES OF THE HOUSE OF DELEGATES OF THE MEDICAL SOCIETY OF THE STATE OF CALIFORNIA,

Forty-Third Annual Session, Oakland, April 15,
16, 17, 1913.

FIRST SESSION.

The first session of the House of Delegates was called to order by the President, O. D. Hamlin, at 8 p. m. Tuesday, April 15th.

Roll call disclosed the presence of 52 delegates and the President declared a quorum present and the House ready for business.

The Report of the President had been presented to the members at the general session in the morning.

Reference Committee on Reports and New Business. On motion of Kress, seconded and carried, a committee of three was appointed to consider all reports of officers and committees and to report to the House with recommendations at the second session. The President appointed as such committee Geo. H. Kress, Chairman; G. G. Reinle and Rene Bine.

The Report of the Secretary was then read and referred to the reference committee.

The Report of the Council was then read and referred to the reference committee.

The Report of the Editor was included in the Report of the Secretary.

The Report of the Treasurer—the Union Trust Co., of San Francisco—was included in the auditor's report published in the March JOURNAL.

Reports of Standing Committees. Committee on Scientific Work. The Chairman, Dudley Fulton, reported verbally that there had been some little friction in the matter of arranging the programs of the sections but that this would be remedied next year.

Committee on Public Policy and Legislation reported verbally by its Chairman, Geo. Tucker, that the report had been made at the morning general session.

Reports referred. The President announced that there being no objection all reports, which had been presented at the morning general session would be referred to the reference committee; no objection, so ordered.

New Business. Rene Bine introduced the following resolution which was referred to the reference committee:

Whereas, the number of malpractice suits is increasing and since physicians connected with hospital associations and those doing other forms of lodge and contract practice are frequently obliged to perform a great deal of work in a hurried manner; be it

Resolved, That the attention of County Units be directed to the fact that physicians doing contract work of this character are liable to demand a great deal of work from our Medical Defense department and thus be an undesirable source of expense to the Society, and that County Units should exercise care in considering their admittance.

Rene Bine introduced the following resolution, which was referred to the reference committee:

In view of the great expense to the Society of having a stenographer present at scientific sessions to take down the discussions on papers and writing them up, and in view of the further fact that many pages of these discussions are never printed, not to mention the alterations and additions indulged in by members in revising them; therefore, be it

Resolved, That the services of a stenographer be dispensed with and that members be requested to write up their discussions and send them to the JOURNAL office in proper form so that they may be published with the original papers.

Henry Horn introduced the following resolution, which was referred to the reference committee:

Whereas, The A. M. A., the National Society of Obstetricians and various societies of ophthalmologists of the United States have recommended and approved the enactment of laws furthering the prevention of ophthalmia neonatorum; therefore, be it

Resolved, That the President of this Society be empowered to appoint a special committee to further this work and to act in co-operation with a similar committee of the A. M. A.

There being no further new business, the minutes were read and approved as read (and as herein above published) and the House of Delegates adjourned to 8 p. m. Wednesday, April 16th.

SECOND SESSION,

Wednesday, April 16th, 1913.

The House of Delegates was called to order at 8:20 p. m. and the roll call disclosed the presence of 56 delegates.

Place of next meeting. Riverside and Santa Barbara were nominated and the President declared a ballot and for that purpose appointed F. B. Carpenter and Sol Hyman as tellers. Riverside received 29 votes and Santa Barbara received 35 votes; the President announced the choice of the House as Santa Barbara.

President. Fitch C. E. Mattison was placed in nomination by H. Bert Ellis. There being no other nominations it was moved, seconded and carried that the Secretary cast the ballot of the House; this was done and the President declared F. C. E. Mattison elected President for the ensuing year.

First Vice-President. Barton J. Powell was nominated and there being no other nominations the Secretary was instructed to cast the ballot, which was done.

Second Vice-President. George Tucker was nominated by F. B. Carpenter and on motion he was unanimously elected by a rising vote.

Secretary. Philip Mills Jones was nominated and there being no other nominations, on motion, the President was instructed to cast the ballot of the House, which was done, and Philip M. Jones declared elected.

All of the following officers were elected on a motion in each instance that the Secretary cast the ballot of the House:

Councillors. Second District—George H. Kress.

Sixth District—C. G. Kenyon.

Eighth District—Jas. H. Parkinson.

At Large—O. D. Hamlin.

Committee on Public Policy and Legislation; two to serve for three years: F. F. Gundrum, Sacramento, and T. C. Edwards, Salinas.

Committee on Scientific Work; to serve four years: A. B. Grosse.

Committee on Arrangements: Rexwald Brown, Benj. Bakewell and Gilbert Hamilton.

Committee on Public Health: C. C. Browning, Jno. C. King, W. F. Snow, G. F. Broderick and N. K. Foster.

Delegates to the A. M. A. for two years: George Hare, Fresno, and V. G. Vecki, San Francisco.

Alternates, for one year: Clarence Moore, Lem Adams and Emmet Rixford.

Mr. Peterson, Chief of Police of Oakland, was invited to say a few words to the House of Delegates, which he did. On motion of C. G. Kenyon, seconded by many and carried, he was requested to address the general session on the following day.

Report of the Reference Committee was then read by the Chairman, Geo. H. Kress, and on motion, the report was accepted and the recommendations considered seriatim.

Mr. President and members of the House of Delegates:

Your Reference Committee on Reports of Officers and New Business begs leave to report as follows:

The Committee congratulates the Society on the substantial progress made and after consideration of the reports of the President, the Council and the Secretary-Editor, begs leave to make the following recommendations:

1. That the suggestion be endorsed and that all county units be urged to co-operate with the laity and lay organizations in efforts to educate their citizens in all matters relating to public health work and legislation and in this particular wishes specifically to mention the splendid efforts of the Public Welfare League of California as a type of what can be accomplished through such efforts. (Carried.)

2. That the suggestion of county units that they make special efforts to make membership in the county and state societies stand as a full expression of our ideals regarding professional qualifications and ethics, be endorsed. (Carried.)

3. That the President's suggestion that annual joint meetings by our county medical units with their respective county legal and dental organizations be endorsed as worthy of careful consideration and practice. (Carried.)

4. That the House of Delegates congratulates the Society on the splendid and most successful manner in which the malpractice defense feature of our Society has been handled, and that we ask for the future the same loyal interest and support in this work from all members as has been evidenced by them in the past. (Carried.)

5. That we recommend that the House of Delegates authorize the Council to declare a special

assessment not to exceed a total of two dollars (\$2.00) per member for the year 1913, to be placed to the credit of the medical defense fund, if it shall become necessary. (Carried.)

6. That the assessment for the year 1914 be fixed at the sum of six dollars (\$6.00) per member. (Carried unanimously.)

7. That the Society be congratulated on the increasing prosperity and influence of the JOURNAL and that the attention of all members be again called to the fact that both scientific articles and editorials are alike welcomed by the editor and the publication committee, and that the county societies be requested to send as full accounts of their meetings as possible, since they can not be other than of great value as an incentive. (Carried.)

8. That the method of the Secretary in keeping and checking the financial accounts and all income and expenditure of the Society and the method of the Council in having all these accounts and records investigated annually by a firm of certified public accountants, be commended. (Carried.)

9. That as regards a special button, the committee feels strongly that inasmuch as the A. M. A. has a button and that all of our members could be A. M. A. members, there is no need for a separate button. (Carried.)

10. That as regards the annual certificate of membership, the reasons just given in regard to a button apply with equal force to a certificate and we make the same recommendation. (Carried.)

11. That the Program Committee be instructed to notify all essayists that not to exceed 10 lines will be given to each essayist for a brief abstract of his paper to appear in the official program and that every essayist be required to send to the Program Committee, in ample time, such an abstract. (Carried.)

12. That the resolution dispensing with the services of a stenographer to take down discussions at the annual meetings, be approved. (Carried.)

13. That the resolution asking county societies to make careful enquiry and consideration before electing to membership applicants doing lodge and contract practice for the reasons stated in the resolution, be endorsed. (Carried.)

14. That the resolution regarding the prevention of ophthalmia neonatorum be referred to the Council for consideration. (Carried.)

Respectfully submitted,

G. G. REINLE,

RENE BINE,

GEO. H. KRESS, Chairman.

H. Bert Ellis introduced the following amendment to the by-laws which, under the rules, had to lie over till the next session of the House of Delegates:

Amend Section 4 of Article VI of the by-laws to read as follows: "The selection of the place of meeting shall be determined by the Council and its announcement followed, by the election of officers, shall be the first order of business of the House of Delegates at the second evening session of each annual meeting."

A motion of thanks to the ladies and the physi-

cians of the Alameda County Medical Society and of the City of Oakland was then introduced, seconded by many delegates, and carried.

The President appointed C. G. Kenyon and H. Bert Ellis, two ex-presidents of the Society, to escort the newly elected President, Fitch C. E. Mattison, to the room. He was then presented to the House of Delegates and made a few appropriate remarks of thanks and appreciation.

The minutes of the second session were then read and approved as read (and as herein above printed) and there being no further business the House of Delegates adjourned without date.

PHILIP MILLS JONES, Secretary.

REPORT OF THE CALIFORNIA STATE TUBERCULOSIS COMMISSION.*

By GEORGE H. KRESS, M. D., Los Angeles, Chairman.

The California State Tuberculosis Commission come into being two years ago, as a result of the passage, by the 39th California State Legislature, of a bill appropriating the sum of five thousand dollars to be expended in carrying on an investigation concerning the prevalence, prevention and treatment of tuberculosis in California. The bill provided, furthermore, that this investigation should be conducted under the supervision of a state tuberculosis commission to be appointed by the California State Board of Health.

The Commission as thus appointed consisted of an executive committee of five members and an advisory board of fifty members. The full membership consisted of physicians, legislators, sociological experts and other laymen, who had had special opportunities or reasons for being interested in the solution of the tuberculosis problem of California. The above members all served without pay or salary. A secretary, Mr. Guy P. Jones, was employed to collect and analyze the morbidity and mortality statistics of the state.

To better attain the aims of the Commission the work of investigation was divided into ten separate divisions, each in charge of a sub-committee consisting of a chairman, who was a member of the executive committee, and of five members of the advisory board.

The fields of investigation were as follows:

1. Committee on Institutional Measures and Administrative Methods—Dr. C. C. Browning, Chairman.

2. Committee on Construction of Institutions—Dr. C. C. Browning, Chairman.

3. Committee on Schools and Health Administration—Miss Catherine Felton, Chairman.

4. Committee on Housing Conditions—Miss Catherine Felton, Chairman.

5. Committee on Sociologic and Economic Aspects—Dr. George H. Kress, Chairman.

6. Committee on Legal Procedure and Laws—Dr. George H. Kress, Chairman.

7. Committee on Scientific Problems—Dr. R. G. Broderick, Chairman.

8. Committee on Education—Dr. R. G. Broderick, Chairman.

*Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

9. Committee on Institutional and Commercial Problems—Mr. A. Bonnheim, Chairman.

10. Committee on Registration and Disinfection Measures—Mr. A. Bonnheim, Chairman.

Each of these ten committees brought in a report, which it is hoped will be published in full. A preliminary report covering some of the facts upon which the Executive Committee based its recommendations for new laws, as presented to the 40th Legislature now in session at Sacramento, appeared in the Bulletin of the California State Board of Health of January, 1913 (Vol. VIII, No. 7). Those who are interested in the subject can obtain a copy of this Bulletin, by writing to the Office of the State Board of Health at Sacramento.

It may not be out of place here, however, to enumerate the special bills prepared under the direction of the Commission and which are now before the present Legislature for consideration.

These are:

1. A Division of Tuberculosis under the State Board of Health, with an appropriation of twenty thousand dollars for the two years 1913, 1914.

[Senate Bill No. 980, introduced by Senator Mott, and the companion Assembly Bill No. 1234, introduced by Assemblyman Guill, provide for this.]

2. A Revolving Fund for use by the State Board of Health in providing immediate assistance to emergency or otherwise specially urgent cases; the respective counties responsible for such cases to be required to reimburse the revolving fund for all sums expended from it.

[Senate Bill No. 974, introduced by Senator Birdsall, and the companion Assembly Bill No. 1385, introduced by Assemblyman Dower, make such provision.]

3. State Regulation of county hospital wards for advanced tuberculosis patients and State Aid for county treatment of tuberculosis patients to the extent which may be indicated by the finances of the state.

[If funds are available for this purpose Senate Bill No. 6, introduced by Senator Boynton, can be amended in accordance with the suggestion.]

4. State Farm Colonies for early and convalescent tuberculosis patients, to be provided if possible.

[Senate Bill No. 1094, introduced by Senator Boynton, and the companion Assembly Bill No. 1403, introduced by Assemblyman Farwell, provide for these measures.]

5. Existing laws related to tuberculosis to be amended if necessary so as to insure their enforcement, and official recognition of dispensaries should be provided, although at the present time it is deemed expedient that they should remain supported wholly by municipal and philanthropic appropriations.

Copies of the above bills may be obtained by writing to legislators from your home districts.

The Commission requests at this time, that all who can, write to their home Assemblymen and Senators urging support of the above measures. By so doing a big step, at comparatively a small

money outlay, will have been taken by the state. In two years more, it will then be possible to institute other measures of larger scope.

REPORT OF SPECIAL COMMITTEE ON THE EFFECT OF ATHLETICS ON YOUNG PEOPLE.

By G. F. REINHARDT, M. D., Berkeley.

This work has been developed along two phases, one the purely physical and the other the psychological side. Dr. Powers will present a personal report on the psychological side of the work. The first difficulty we have encountered is to find a method whereby observations can be made with any degree of accuracy. In the past the observations made on the influence of exercise or excess of exercise on students has been too much colored by the personal opinion of the observer. We have practically spent the year in trying to evolve a method to eliminate the personal equation of the observer. The outcome of this work will be more fully presented in a paper that Dr. Kilgore will read. I can only say that a considerable amount of work has been done and little accomplished. It has meant the expenditure of upwards of \$300 in actual money. Contributions towards this work are difficult to obtain. A certain amount of clerical help has to be employed.

ORIGINAL ARTICLES

EFFECTS OF ATHLETICS ON YOUNG PEOPLE.*

Sub-Report of H. D'ARCY POWER on Psychological aspect of the question.

This is a resumé of a detailed paper on the subject, to be read at a general meeting of the Society, on the evening of the 15th.

In seeking an answer to the question as to how and to what extent athletics has an influence on the mind, four lines of investigation were open.

1st. A deductive statement based on known physiological and psychological data.

2nd. Laboratory investigations as to mental conditions before, during, and after training.

3rd. A statistical investigation into the records of colleges with the view of ascertaining the scholastic status of athletic teams as compared with non-athletes.

4th. A critical estimate based on the opinion of a large number of instructors reflecting their actual observation and experience.

The conclusions here presented follow all these lines, but the chief accent has been placed on the last to which special attention has been directed.

By the first method it is deduced that as the musculature constitutes more than half the body weight, and is concerned in heat production as well as motility, its mass can not be reduced beyond a certain point without involving other tissues, including the neural, in the strains incident to displaced function. That as the nervous system and the cerebral cortex in particular, are largely concerned in motor activities, and ideation may be

*Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

dependent on kinaesthetic impressions, so a defective musculature may involve direct impairment of cerebral function. On the other hand excessive musculature or excessive muscular activity is directly detrimental because the first involves a destruction of physiological balance, and the second is productive of toxic katabolites, whose influence extends to all cells, and nerve cells in particular. Lastly psychological investigation has demonstrated that brain function tends to two different types of expression. That afferent impulses may diffuse themselves in the brain, giving rise to sustained mental activity,—the sensory type of mind,—or, promptly discharge themselves through motor channels with little or no reflection, the motor type of mind; such minds act automatically, and represent a primitive and non-intellectual phase of mental activity. Such a mind turns naturally to athletics, and is dominant amongst athletes.

The second method of investigation, namely laboratory studies, is not available at the present time. Methods of procedure are still subjudice and often open to various interpretations. Such work as has been done is too small in amount to be of value for this purpose, and it will be a matter of years before experimental data can be utilized.

The third line of investigation is probably the most reliable, namely, the collection and comparison of statistics showing status of scholarship of athletes and non-athletes, of men before, during and after training periods, of ultimate success in life. This method has the approval of Professor Holt of Harvard, who holds that laboratory methods are not applicable to the subject. Work has already commenced along these lines but the data so far in my possession are insufficient for the expression of an opinion. I hope to study the problem from this side during the coming year, and present a further report at the next meeting.

As to the fourth method it is self-evident that the actual instructors in our universities and high schools as men especially concerned and interested in the scholastic success of their classes cannot teach year in and year out without observing the effects of physical training and competitive athletics as it is reflected in the behavior and mentality of their own pupils. As Professor Holt writes me, "The administration officers of almost any college or university have an opinion on athletics and scholarship, and the consensus of such opinions is the best guide, as I think." So also had I thought, and to obtain that consensus I forwarded to fifty universities of the United States, and to twenty of the largest high schools of California the following letter and questionnaire:

Letter Sent Out.

To the President of the University:

Dear Sir:—The State Medical Society of California at its last session appointed a committee to investigate the effects of excessive athletic training on students in high schools and universities, with instructions to report at the coming session in the Spring of this year. The work of this committee has been divided amongst the four members thereof, and the psychological aspects of the problem are in my charge. The field is one in which there is little material in the way of experimental evidence and the time does not allow of much direct investigation before the meeting of the Society.

Under these circumstances it appears to me that, pending the making of such direct research, much valuable information could be afforded to the committee in the drafting of its report by obtaining a direct expression of opinion from those engaged in teaching students of the classes named. Considering the great importance of the question I feel justified in asking your kind co-operation in the matter. I am enclosing some cards to be filled out by those instructors whom you may think most willing and best prepared to afford information. The trouble involved to the latter is small and should any of them be inclined to further aid the matter in hand by correspondence, the same will be greatly appreciated. This latter request is particularly directed to the Department of Psychology in your Institution.

Thanking you in advance, I remain,

Very truly yours,

H. D'ARCY POWER.

Card.

The Committee on Athletics of the State Medical Society of California will be obliged by an answer to the following questions, based on your personal observation. (Kindly return answer within a week):

- 1—Have you found students excessively addicted to athletics disinclined to or incapable of intellectual effort?
 - 2—Do students that have passed through a period of athletic training show any falling off in the quality of their college work?.....
For how long?.....
 - 3—If so, what is the effect on
Memory
 - Concentration
 - Reasoning
 - Will power
 - 4—Have you noted any relation between athletics and morals in general?.....
In ideals?....., In restraint?.....
- (Signed)
- Prof. or instructor in.....
University of.....

It will be noted that especial emphasis is laid on asking for answers based on observation only, not on opinion; I tried further to get the best of replies by asking the presidents of the colleges to distribute the questionnaires to those they thought best fitted to give answers. I now doubt the wisdom of this, as I find that presidents are not free from bias and my answers included an excessive number of reports from gentlemen directly connected with athletics (15 in all). I do not wish to impugn the candor of such correspondents but in matters of this kind we are not justified in overlooking the importance of the personal equation.

Of these institutions the majority made response, including, I am happy to say, the largest and most influential educational bodies in the United States. Why did the remainder ignore a direct letter to their president written in the name of the State Medical Society of California? For reasons which I have fully considered in the paper, of which this is a summary, I am of opinion that an investigation into the status of athletics in the universities and colleges is very unwelcome to the governing bodies of many of these institutions. Competitive athletics is the flaming poster by which they advertise for students. Adverse comments by members of their staff would be embarrassing. Given the choice of publicity, mendacity, or discourtesy, the latter was doubtless the easiest way.

The answers received are very interesting. Sixty per cent. are positive in finding that athletes

as a body are averse to study. As Professor Holt remarks, "Of course, the athletes are not the students. The trouble is that the athletes do not study, but they are men who anyhow would not study." The replies from the high schools place the antithesis between athletic tendencies and scholarship as high as 75%. The second question as to whether there is a lowering of scholarship during the period of training is answered by 75% in the affirmative, but there is no agreement as to the duration of the bad influence. Some believe it lasts only during the training period, others for a year, a few think its influence permanent.

The third question, dealing with the faculties chiefly affected, is most fully and explicitly answered in regard to concentration. Ninety-four per cent. hold that it is weakened or destroyed, eighty-six per cent. note weakening of will power; eighty-three per cent. lowering of ability to reason and seventy-eight per cent. weakening of memory.

The fourth question is answered in an unsatisfactory manner. Forty per cent. make no reply to the question at all, and those that do often make remarks that imply misunderstanding of the information sought. Thus sixty per cent. believe that ideals are improved, but seem to be thinking chiefly of the ethics of sport,—not intellectual or moral ideals in later life. Seventy per cent. believe that power of restraint is increased, but make remarks that convey the idea that they are thinking of the enforced restraints of the training period, not the continued exercise of moral restraint in later life. The evidence I have received from others in this connection leads me to believe that the abstinences of the training period are often followed by physical and moral relaxation frequently leading to license.

The answers received are interesting and valuable, and sufficiently widespread and numerous to afford a safe basis for opinion. The question involved is one of the most important college problems of the day. I believe that the investigations of this committee ought to be continued with better provision for intercommunication between its members; also an interim report should be published that would stimulate discussion and provoke direct experimentation and statistical investigation.

THORACIC ESOPHAGECTOMY: REPORT OF A CASE.*

By J. HENRY BARBAT, M. D., San Francisco.

The resection of the cancerous esophagus through the thorax has been attempted about fifty times, and no patient has yet survived the operation. In about half of the cases the operation was merely exploratory, as the disease had extended beyond the limits of the esophagus, but these patients also died within a very short time. Several patients died on the table or shortly after the completion of the operation. This retrospect makes the procedure appear very formidable, and we begin to wonder if we are justified in advocating such a uniformly fatal operation to those suffering from esophageal cancer. There have been a sufficient number of

operations done to enable surgeons to determine the causes of death in these cases, and to endeavor to overcome them. Shock, infection, pneumothorax and interference with the Vagus nerve, one or all are the causes assigned for the fatal outcome following thoracic esophagectomy. The surgeon who hopes to attain success in this work must combat and overcome these factors which have so far mitigated against the successful accomplishment of this operation. The question is one of surgical technic, and the causes mentioned must be studied and measures taken to prevent their occurrence.

It is well recognized that the opening of the thoracic cavity causes considerably more shock than opening of the abdominal cavity, and the longer the cavity remains open, the greater the shock. As the operation is planned at present, it requires between three and four hours to accomplish it, and we will have to devise means to shorten the time, or do it in two sittings. Rough handling of the thoracic viscera is not tolerated, and may cause sudden death. The usual means to combat shock must be employed before, during and after the operation.

The pleura cannot withstand infection as effectively as the peritoneum, and I believe that our efforts should be directed mainly to minimizing as much as possible all sources of infection. The greatest difficulty is experienced in handling the divided ends of the esophagus, and various methods have been devised to close them effectually. Willy Meyer has suggested inversion and covering with a fascial graft. The effort of swallowing which the patient makes after the operation, and which cannot be obviated, is apt to force open almost any method of closure which may be adopted. The distal end does not need as much care, as there is little likelihood of regurgitation from the stomach, on account of the gastrostomy which has been previously performed. Infection from the air in the operating room must also be taken into account.

Pneumothorax, single or double, or complicated with infection, has been the cause of most of the deaths following this operation, apart from shock. Still more dangerous is fluid in the pleural cavities, and while we may be able to avoid the exudate from the visceral and parietal pleura by extreme care and delicacy in handling, we have no way of preventing the secretion from the walls of the space left by the removal of the esophagus. I agree fully with Willy Meyer that drainage should be employed in every case of thoracotomy in which any intrathoracic work has been done. Regarding traumatism to the vagi, no rule can be laid down, but I would consider any case inoperable in which both nerves are surrounded by the growth above the fifth dorsal vertebra, as it is impossible to dissect them free above this point without cutting the branches to the heart and lungs. Extreme delicacy in handling, and the avoidance of pinching the nerves with forceps, or making traction on them, will obviate one of the most rapidly fatal complications of this operation.

The patient upon whom I operated was a man 45 years old, who had first noticed some difficulty in swallowing about two months previously. The

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

obstruction increasing he consulted a physician, who diagnosed a cancer of the esophagus 25 cm. behind the line of the teeth. The esophagoscope disclosed a growth, a piece of which was excised and proved to be a carcinoma. The difficulty in swallowing was so great that it required several minutes to swallow a glass of water. A $\frac{1}{2}$ cm. bougie passed through the strictured portion easily, but a $1\frac{1}{2}$ cm. bougie was stopped 23 cm. from the line of the teeth. A bristle probang passed through the stricture and opened, was stopped at 27 cm. from the line of the teeth, showing the point of greatest stricture to occupy about 4 cm. When the probang was removed the bristles were all pushed apart from the back and contained small masses of carcinomatous tissue, showing a fungating mass toward the back of the esophagus. X-ray showed no involvement of the lungs. The patient was losing weight rapidly, and suffered intense misery with every attempt at swallowing. I placed the question of operation squarely before him, explaining to him the difficulties and possible fatality, and he gladly consented to take the chance rather than continue as he was.

I did a preliminary gastrostomy, Franck's, December 21, 1912, and fed him through the tube until December 28 when the esophagectomy was done. For two days previously he was given every two hours a mild antiseptic wash to swallow in order to cleanse the diseased area as thoroughly as possible. The anesthesia was begun with a hypodermic of morphine, atropine and scopolamine, given one hour before the operation. Gas and oxygen were administered in the usual way, and when the patient became unconscious a catheter was introduced into the trachea and connected with my anes-

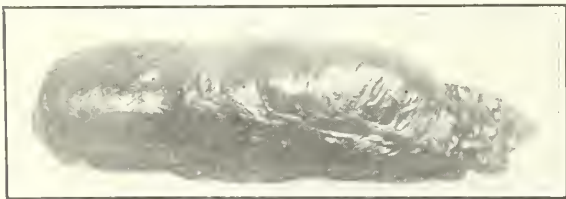


Fig. 1. Esophagus, one-half natural size.

thesia apparatus, which consists of tanks of compressed gas oxygen and air, which can be mixed in any proportion and given straight or passed through heated ether. The anesthetist did not feel at ease with the intratracheal method and changed to positive pressure before the thorax was opened. The positive pressure apparatus used was the device described by Dr. Sterling Bunnell in the January number of the CALIFORNIA STATE MEDICAL JOURNAL, 1910, and consists of a delicate, adjustable spring placed on a Teeter mask which is connected with the compressed gas apparatus.

Through the courtesy and with the kind assistance of Dr. H. A. L. Ryfkogel, the operation was worked out on the cadaver and found perfectly feasible, and done as follows: A Schede incision was made on the right side extending from just below the clavicle at its inner third, to below

the seventh rib and around to the back. When the flap was dissected up and the arm rotated inwardly, the scapula was pulled out of the way and the upper part of the thorax well exposed. Very little bleeding took place. The flap was wrapped in warm moist towels and held out of the way. The thorax was opened in the third intercostal space and the rib spreader introduced, giving a splendid exposure. The lung filled and partially emptied rhythmically, and the opening of the thorax did not have any appreciable effect on the condition of the patient. The interior of the cavity appeared perfectly normal and the lung showed no sign of disease and was free from any adhesions. Careful examination with the finger showed the esophagus to be thickened and infiltrated from the azygos vein, up into the neck as far as I could reach.

The pleura was cut from the azygos up and the esophagus freed front and back with the finger. The greatest difficulty was experienced in freeing the distal side to avoid tearing the pleura of the left side. After freeing all of the attachments as far as I could reach, I found that the disease extended below the azygos vein, and I was obliged to make a second incision in the fifth interspace in order to reach below the cancer. The pleura was incised below the azygos and the healthy esophagus pulled through and, after having thoroughly crushed out the mucosa, was ligated above and below the crushing forceps, and cut between the ligatures. The cut ends were thoroughly cauterized with pure carbolic acid. An attempt was made to invert the lower end, but abandoned on account of its great depth in the wound, and it was dropped back and the pleura closed over it.

The rib spreader was again introduced in the third interspace and the esophagus drawn above the azygos by means of a silk ligature. An incision was made in the left side of the root of the neck down to the esophagus. From below, the finger was easily passed up into the neck, and by means of a forceps passed from above, the esophagus was drawn into the neck wound. The distal opening in the pleura was closed by means of a fine catgut suture.

The intercostal incisions were closed in the same manner and the musculo-cutaneous flap replaced and held in place with interrupted sutures. The piece of esophagus which was projecting through the neck proved to be infiltrated almost up to the pharynx and considerable traction had to be made to get above the line of disease. Crushing forceps were applied and the crushed tissue ligated and the projecting mass cut away. The ligated end was cauterized and allowed to drop. A drainage tube was placed down to the cut end, and gauze packed into the rest of the neck wound.

The patient's condition was excellent and he was placed in bed in a horizontal position and on his back. Pulse 120, respiration 28. After a few hours it was noticed that there was considerable seepage from the neck wound and that air could be heard hissing in and out with each respiratory effort. The foot of the bed was elevated to favor

drainage, and the patient claimed to be fairly comfortable. At the end of twenty-four hours the pulse rose to 140, temperature 100° F., respirations 30. The drainage diminished and I attached a long tube to the tube in the neck, so as to get the aspirating effect of the column of fluid. This increased the amount of drainage materially and the patient was much relieved. Forty-eight hours after the operation he became cyanosed, restless and ap-

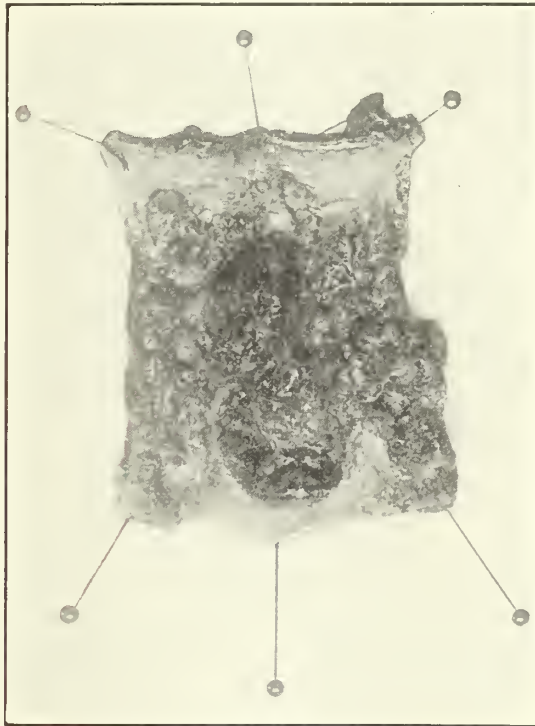


Fig. 2. Same, split anteriorly.

peared air hungry, and sat up in bed. He became rapidly weaker and died fifty-two hours after the operation. No autopsy.

Comment: I believe that with a few modifications in technic the result might have been different. The principal factors which I believe contributed to the early death of the patient were sepsis and improper drainage. In spite of all the care which we may take, it is almost impossible to avoid soiling the pleura or esophageal space, after the esophagus has been cut, and I would advise a technic which we have worked out on the cadaver and which will tend to minimize the most fatal complication except shock. After the esophagus has been freed it is slowly crushed with a wide forceps and doubly ligated. It is then cut either with the cautery or knife and the ends thoroughly cauterized with carbolic acid and wiped dry. If the disease is so situated that the upper end of the esophagus must be removed, make an incision at the root of the neck and pull the diseased mass through, and after ligating leave enough so that the cut will project beyond the skin, and close the muscle and skin so that there can be no escape of air or fluid. This prevents the possibility of any material from the mouth getting into the esophageal space. Un-

less the disease be confined to the lower end of the esophagus, and the operation completed by making an anastomosis between the stomach and esophagus, I would be inclined to advocate the removal of the upper end through the neck, to prevent the probability of infection, which is almost sure to be fatal. We attempted to pull the divided ends of the esophagus through the intercostal spaces, but found that it necessitated freeing the tube for at least ten centimeters to bring it to the skin. The infection of the pleura from contact with air can best be guarded against by covering the lung with a silk handkerchief soaked in vaseline as advised by Carrel. Extreme delicacy in handling the tissues will contribute in no small degree to a successful outcome.

Drainage, as advised by Willy Meyer, should be adopted in every thoracotomy, and I believe that complicated devices are unnecessary. A properly arranged piece of rubber dam is sufficient to allow fluids and air to pass out of the chest cavity and prevent any from entering. I have been using this method for many years in cases of thoracoplasty for empyema and have always found it efficient.

It will be found much easier to attack the lower end of the esophagus through the left side and the upper part from the right side.

BIBLIOGRAPHY.

- Dombromysslav, *Centralblatt von Chirurg*, 1901, 1.
 Faure, J. L., *Presse Medicale*, 1903, No. 1.
 Frangenheim, *Wiener Med. Wochenschr.*, Dec. 14, xxiv, No. 50.
 Green & Janeway, *Annals Surgery*, June, 1910.
 Green & Janeway, *Surg. Gyn. & Obstet.*, October, 1910.
 Jianu, A., *Deutsche Zeit. Chir.*, Leipzig, Aug. 1, xviii, Nos. 1 and 2.
 Kelling, G., *Centralbl. v. Chir.*, Leipzig, 1904, Nos. 4 and 20.
 Kernig, W., *St. Petersburg Med. Zeitsch.*, Jan. 14, xxxvii, No. 1.
 Lane, W. A., *British Med. Jour.*, 1911, Jan. 7.
 Lang, W. P., *Am. Jour. Surg.*, 1909, July.
 Levi, *Langenbeck's Archiv.*, Bd. lvi.
 Lexer, E., *Munch. Med. Wochenschr.*, 1911, No. 29, July 18, lviii.
 Meyer, Willy, *Annals Surgery*, 1901, May.
 Meyer, Willy, *Annals Surgery*, 1909, July.
 Meyer, Willy, *Annals Surgery*, 1912, July.
 Meyer, Willy, *Surg. Gyn. & Obs.*, 1912, Dec.
 Ritter, C., *Deutsch. Zeit. Chir.*, Leipzig, Nov., cxii, Nos. 4 and 6.
 Roux, *Semaine Medicale*, 1907, No. 4.
 Sauerbruch, *Beit. z. klin. Chir.*, Tubing., 1905, Aug.
 Sauerbruch, *Deut. Zeit. Chir.*, Leipzig, March, xcvi, Nos. 2 and 3.
 Sauerbruch, *Journ. A. M. A.*, 1908, Sept. 5.
 Stettin, C., *N. Y. Med. Journ.*, 1905, June 10.
 Tiegel, M., *Munch. Med. Woch.*, April 26, lvii, No. 17.
 Tiegel, M., *Beit. z. klin. Chir.*, Tubing., Dec., lxxv, No. 2.
 Tiegel, M., *Central v. Chir.*, Leipzig, July 17, xxxvi, No. 29.
 Wendel, W., *Arch. klin. Chir.*, Berlin, xciii, No. 2.
 Winiwarter, *Wiener klin. Wochen.*, April 4, xxv, No. 14.
 Zaaizer, J. H., *Beit. z. klin. Chir.*, Tubing., Feb., lxxvii, No. 2.

SUGGESTIONS FOR A MENTAL HYGIENE.

By G. V. HAMILTON, M. D., Santa Barbara.

The facts and principles that guide us in our efforts to conserve human comfort and efficiency constitute two quite distinct kinds of material for analysis and classification, and are therefore incapable of entering organically into a single scientific system. Of this material one kind must be dealt with in terms of *individual awareness*, and can find no legitimate place elsewhere than in a psychological science; the other kind of material

can be adequately treated only in terms of the *objects* of awareness, that is, after the facts involved have been abstracted from their psychological relationships to the experiencing subject. A concrete example will serve to make clearer this distinction.

A boy, emaciated and far advanced in pulmonary tuberculosis, is passing on the street below me. With him is his mother, who is on the verge of a nervous collapse. The boy coughs, holds his side, and expectorates into the gutter. His mother assumes a tense expression, looks away from him, and quickens her step. This episode contains material for each of two possible systems of hygiene:

(1) The tubercle bacilli that have just been cast into the street may be taken up by the winds as soon as the medium in which they are contained is dried. Their inhalation by other people may lead to a further spread of tuberculosis, a danger against which the physical hygienist seeks to guard the community. With the facts of bacteriology, physiology, pathology, etc., at our command we are able to propose correctives which shall reduce and ultimately eliminate the spread of tuberculosis in this manner.

Now none of the facts to which I have just referred are relevant to the interests of physical hygiene except as they are regarded as having an existence and a reality quite independent of individual mental experience.

(2) The mother's behavior suggests to another consciousness than her own that her manner of thinking and feeling about her son's illness may have given rise, in her, to a mental attitude toward this tragedy which makes her misery unnecessarily intense, and which accounts for a mental and physical impairment that could be avoided if she knew how to govern her mental life during this trying period.

In this instance we find that the discrimination and classification of facts concerning the mother's states of awareness, the correlation of these with a great body of other psychological facts, the isolation and interpretation of sequences that are found on examination of this material and the deduction therefrom of principles which may enter organically into a scientific system must be done in terms of awareness. In other words, the specific interest of mental hygiene is in that very phase of human experience which physical hygiene must ignore, viz., the subjective. To introduce this material of psychology into a system of hygiene which must deal with the purely objective aspect of things is no more destructive of scientific unity than to construct a mental hygiene from material that is obtained only by first ignoring its primary position as part of somebody's individual experience or awareness. To attain to scientific coherence and purposefulness in any field of endeavor it is necessary to bring together the kinds of material that fall within a logically delimited field of science: An excellent criterion of what may constitute such material may be found in Pearson's¹ definition of the function of science: "The classification of facts, the recognition of their se-

quence and relative significance is the function of science."

It is clear, then, that we can not have a single applied science to which we may give the name "hygiene" and into which we may fit two such dissimilar kinds of material as, for example, the findings of bacteriology and the psychological aspect of neurasthenia. On the contrary, there is need of a *physical hygiene* which shall deal with health problems from a physical viewpoint, and of a *mental hygiene* which may legitimately take its place as a form of applied psychology.

In spite of the fact that a scientific system of mental hygiene cannot make an organic inclusion of non-psychological findings, it is of much practical importance that it should make certain correlations of its own findings with those of physical medicine. There are structural and physiological conditions that must be present before consciousness, as we know it, is possible at all; and normal, efficient mental life is attainable only in a reasonably healthy organism. It is further to be remembered that academic psychology, to which mental hygiene must look for many foundation facts and principles, depends upon the structure and function of the nervous system for clues to explanations which are themselves made along purely psychological lines. Titchener² gives expression to this as follows:

"... Processes in the nervous system and mental processes run their course side by side, in exact correspondence but without interference; they are, in ultimate fact, two different aspects of the same experience. The one cannot be the cause of the other. Nevertheless, it is by reference to the body, to the nervous system and the organs attached to it, that we explain mental phenomena. The nervous system does not cause, but it does explain mind."

Mental hygiene must therefore undertake a clear definition of the essential neural conditions of consciousness; and it must give explicit recognition of the physical factors which play a part in the determination of mental health and disease.

If mental hygiene is to be regarded as a form of applied psychology its underlying principles must be derived from an academic science to which it shall sustain a relationship not unlike that of surgery to morphology, physiology and bacteriology. Academic psychology at once suggests itself in this connection, but physicians who consult the standard text-books of normal human psychology are apt to feel that the findings of academic psychology are inapplicable to the needs of the mental hygienist. Adolf Meyer,³ for example, declares that "One of the first things that have proved of value in this direction [efforts to make psychology "dynamic" in medicine] has been the abandonment of fussing over the supposed *elements* of psychology and the attempts to explain the chains of [mental] events out of such elements."

This attitude toward academic psychology seems to arise from a misapprehension as to what an applied science may demand of the academic sci-

ence to which it stands in the closest relationship. We do not require the morphologist to present us, ready-made, the structural parts of surgical or topographical anatomy. What we need and obtain from the academic science are certain foundation facts as to the structure of the human organism, an adequate and logical terminology, methods appropriate to the subject and, in general, a vast amount of preliminary information without which topographical anatomy would be capable of no very critical development. In the case of mental hygiene its expositors can scarcely hope to attain to that soundness and coherence which characterizes other medical applied sciences without reference to the methods, conceptions and foundation facts of psychology as this science has had its most critical development at the hands of academic workers.

Eugenic problems are bound to confront the mental hygienist and to impose upon him an obligation to strive for solutions which shall be more than superficial interpretations of statistical material. At the outset we assume that mental activity is capable of effecting results in the lives of conscious organisms, that each individual is for the psychologist a bundle of mental reactive tendencies, that these tendencies are capable of hereditary transmission, and that their relative strength and general balance—in the individual—are capable of a certain amount of determination by environmental factors. It seems to me, therefore, that before we undertake to apply other than a few obviously sound and practical remedial measures for safeguarding individual and racial mental efficiency we ought to arrive at working conceptions of the biological position of consciousness, the history of its development, its relations to the human needs that it ought to meet under normal conditions, etc.

Once we have made an adequate foundation for mental hygiene we are in a position to make an intelligent search for the points of departure of abnormal from normal states of awareness, and to arrive at safe and useful interpretations of our findings. We know that there are states of awareness—modes of thinking and feeling—which interfere with the efforts of the individual to satisfy his needs. The usual psycho-pathological sequence is most simply stated, perhaps, when we say that the unsoundness of mental life with which we are dealing consists in inappropriate reactions to the pressure of needs which, in the total biological scheme of things, ought to awaken tendencies that are inherent in all individuals. That the appropriate response to such pressure is not forthcoming suggests at once that either heredity or habit or both have given us faulty adaptive mechanisms. It follows, then, that mental hygiene must have familiarity with the stock of human mental reactive tendencies so that it may lay down principles for the correction of the faulty reactive mechanisms with which the individual responds to his environment; or, still more thoroughly curative, that it may undertake the delicate task of passing judgment on the fitness of two individuals of opposite sex to reproduce their kind.

In conclusion, I do not wish to seem to belittle the quest of preventable physical causes of mental inefficiency, nor do I assert that reference to them is out of place in a mental hygiene. No amount of psychological analysis will enable us to reduce the prevalence of mental diseases which are directly traceable to such physical agents as syphilis and alcohol unless we make an effort to guard the community against these enemies of the race. My contention is this: Mental hygiene can find its legitimate development only as a psychological science, and as such it must follow a rule of scientific grammar which requires us to confine our quest of psychological principles to examinations of such sequences as are composed exclusively of psychological members. An orderly and logical development of mental hygiene will necessarily lead to correlations of psychology with neural phenomena, and out of this will come practical and explicit recognition of physical agencies which make for mental health and disease. Once the mental hygienist has recognized that the presence or absence of a given physical agent is responsible for a faulty mental condition he has passed at least one aspect of the problem on to the physical hygienist for solution. His own task is to understand mental life in terms of itself, so that he may formulate and apply such psychological principles as are appropriate to the interests of individual and racial mental health.

References:

1. Pearson, Karl, 1911. *The Grammar of Science*. p. 6.
2. Titchener, E. B., 1909. *A Text-Book of Psychology*, p. 39.
3. Meyer, Adolf, 1908. *The Problem of Mental Reaction-Types, Mental Causes and Diseases*. *Psychological Bulletin*, vol. 5, no. 8, p. 254.

PRESENT STATUS OF PROSTATIC SURGERY.*

By CHARLES D. LOCKWOOD, A. B., M. D., Pasadena.

Every new field of surgery must pass through its formative period until sufficient experience has accumulated to permit of more or less definite conclusions as to its value, technic and mortality. Surgery of the prostate has been no exception to this rule. The discussions have not been so heated nor numerous as those regarding appendicitis, but this is due to the fact that fewer cases demanding operation are met with and a relatively small number of surgeons have interested themselves in prostatic surgery. The profession has finally come to an agreement as to the indications for operation in appendicitis and the technic under varying conditions is also well established, but there is not such general knowledge and agreement, I believe, in the profession regarding the surgery of the prostate. There is, however, agreement amongst surgeons who are doing a large amount of prostatic surgery as to the value of prostatectomy and the indications for the operation. There is still a wide difference of opinion as to the relative merits of the suprapubic and perineal routes and the details of technic.

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I. As to the value of prostatectomy. No greater boon has been offered than the relief afforded by a skillful prostatectomy to old men tormented by retention of urine, with its train of attendant ills. When completely successful, it restores old men to mental and physical vigor that is little short of marvelous. Old, decrepit men, with one foot in the grave, who are spending most of their time and energy in unavailing efforts to empty the bladder, will regain function completely and be given from five to ten years of comfort. Old distended, flaccid, trabeculated and putrid bladders, which for years have been incapacitated, will regain the function and elasticity of youth.

II. The indications for operation. It is impossible to lay down hard and fast rules as to when prostatectomy should be advised. The more experienced one becomes, the more he extends the indications for operation. I have come to believe that almost any old man can survive an expertly performed prostatectomy. Some of my most satisfactory results have been in men who would be considered extremely poor surgical risks. In over fifty cases, I have had but two deaths that could be attributed to the operation, and yet I have not selected cases with a view to statistical reports, but have operated in every case where there was even a small chance of success. Among my cases was one of extreme old age, two or three with advanced kidney disease, one with hemiplegia and advanced arterio-sclerosis, one with a healed tuberculosis and degenerated heart muscle and one in a frail little man who barely survived a minor operation ten years previously. These experiences have led me to believe that there is no contraindication to prostatectomy in a patient imperatively demanding it, except impending death and the absence of an expert operator.

In cases presenting themselves early, before operation is sought as a last resort, I should consider the following symptoms sufficient indication for operation: (1) Complete retention, with inability to pass a catheter. It is extremely dangerous in many of these cases suffering from complete retention to perform an immediate prostatectomy. Radical operation at this time will often be followed by severe hemorrhage, infection or acute suppression of urine. A preliminary suprapubic cystotomy, with tubular drainage for a week or ten days will greatly reduce the size of the prostate and lessen the danger of its enucleation. (2) Severe cystitis which does not yield promptly to irrigation and systematic catheterization. (3) When residual urine is above one ounce and catheterization is painful or causes hemorrhage. (4) Prostatismus which cannot be relieved by the permanent catheter.

IV. Choice of operation, suprapubic versus perineal prostatectomy. The failures in suprapubic operations upon the prostate gland as first practiced by Belfield and McGill, inclined surgeons toward the perineal route, when prostatic surgery was revived about ten years ago. For a time the perineal method was lauded as the only safe operation and the technic of the different surgeons varied from a simple median incision and enucleation with the finger unaided by sight, to the careful dissection

methods advocated by Dr. J. B. Murphy and Dr. Hugh Young. In Europe also, the revival of prostatic surgery was chiefly among the exponents of the perineal operation. About this time, I visited the clinics of Europe and saw Zukerkandel, Casper von Frisch and others performing elaborate perineal enucleations.

The suprapubic operation received its chief stimulus from Fuller in this country and from Freyer in England. Each claimed originality and priority in this field. The essential thing in the technic of suprapubic prostatectomy as advocated by both of these men was the identification of the true capsule of the prostate, in distinction from the fascial covering. The true capsule of the prostate closely envelopes the two lobes separately and cannot be peeled off, while the recto-vesical fascia enveloping the gland is loosely attached and can be readily separated from the true capsule. Imbedded in this outer fascial covering are the plexuses of veins, and the disastrous results in early suprapubic operations were due to injury to these veins. Successful enucleation with little post-operative hemorrhage in either the perineal or suprapubic operation depends upon recognizing this plane of cleavage, between the true capsule and the dense fascial outer envelope of the prostate. If separation is attempted on the one hand, between the true capsule and the glandular substance, the prostate will be torn into shreds and can only be removed in small segments; while on the other hand, if the operator wanders into the deeper layers of the fascial sheath and attempts to remove them with the gland, he will tear out the whole floor of the pelvis and injure the prostatic plexus. Whichever route is adopted, the post-operative conditions adjacent to the bladder and urethra are the same in every skilfully performed prostatectomy. After the perineal operation, the bladder and the space left by the enucleated gland are drained from below, while after the suprapubic operation they are drained from above.

The two recognized methods of operation through the perineum are (a) the simple median incision, and enucleation with the finger aided only by counter pressure from above, or by traction through the urethra, by means of some one of the special instruments devised for this purpose. (b) The dissection method in which a free exposure through a "V" or "Y" shaped incision, division of the central tendon and recto-urethralis muscle. The prostate is drawn into full view by tractors and enucleated under guidance of the eye. There is but one correct method of performing suprapubic prostatectomy as indicated above. The bladder must be opened high up, avoiding injury to peritoneum and to the vessels in the prevesical space. Enucleation is begun over the most prominent portion of the gland and, aided by counter pressure through the rectum, the dissection is carried on in the loose connective tissue between the true capsule and the dense recto-vesical fascia. No harm will follow removal of a portion of the prostatic urethra, either suprapubically or perineally.

As to the relative merits of the two operations. Each operation has distinct advantages and opin-

ions differ somewhat according to the experience of the operator. There are few surgeons who are equally expert with both operations. Of 542 cases reported by Judd from the Mayo clinic, the large majority were done perineally. Dr. Hugh Young of Baltimore does practically all cases perineally. Freyer of London almost invariably does the suprapubic operation. In Vienna, the perineal operation was done chiefly up to three or four years ago, when as a result of anatomic and pathologic investigations by Tandler, Stoerk and others, it was found that hypertrophy took place only in the middle lobe, leaving the lateral lobes intact, and that suprapubic operation was the rational procedure. Since this now generally accepted theory has been advanced, almost all urologists in Vienna have adopted the suprapubic operation.

The suprapubic operation possesses the following advantages: (1) It is easier to perform. (2) Bladder conditions such as new growths and stones are more accessible. (3) Less danger of post-operative epididymitis. (4) Better functional result with less danger of fistula and incontinence. (5) More rapid closure of the wound. This claim will be disputed by many surgeons, but my own experience of seventeen perineal and about fifty suprapubic operations strongly supports this claim. Judd in his report of cases gives twenty-one days as the average time for healing in perineal cases, and forty days in suprapubic operations. I have had a number of suprapubic fistulæ heal in two weeks and two in ten days. In relatively clean bladders, I secure a catheter in the urethra and a large drainage tube in the suprapubic wound. The suprapubic tube is removed on the second or third day and the wound drawn together with adhesive. Irrigation is carried out daily through the catheter, the suprapubic wound being tightly pinched together so as to distend the bladder. In this way I have secured rapid closure.

Advantages claimed for perineal operation. (1) It is easier to remove a small fibrous gland by this method. (2) Dependent drainage. This, I believe, is only a theoretic advantage. If a large drainage tube is used suprapubically and made to fit the bladder opening snugly, drainage by siphon is perfect. (3) More rapid healing. My experience has not borne out this claim since I have adopted the technic referred to above. (4) It is a more surgical procedure because a careful dissection can be done. The final test of every operation should be the maximum amount of relief afforded the patient with the minimum of risk. I believe this test will be met in the majority of cases by the suprapubic operation. There will always be a distinct field for the perineal operation, but the tendency is more toward the upper route.

THE LINGUAL TONSIL AND SOME OF ITS DISEASES.

By WILLIAM H. DUDLEY, M. D., Los Angeles.

In presenting this subject to the Society * it is not with the expectation of bringing forth an array

of new facts, or the practical results of investigation, so much as to emphasize facts which have been known for some years: since it is my belief that this organ and its abnormalities, have been, and are at the present time largely overlooked by a large number of those working in the field of laryngology. Although most text books covering the subject of nose and throat work mention the lingual tonsil, and more or less of its diseases, but few appear to place any particular stress upon the subject, and many of them who devote a certain amount of space to its consideration, dismiss it in a most perfunctory manner: and in reviewing the literature on the subject, one cannot but be struck with the number of set expressions which find place in the different text-books, all pointing toward a copying of information, the legacy of some of the earlier students of the diseases of the lingual tonsil, rather than giving the results of personal observations. This is not true of all writers, but of many: and worse than this, some of the systematic writers do not mention these diseases in a manner to suggest that they have ever paid much personal attention to the subject. For instance, one well-known systematic writer on the lingual tonsil states that "the commonest form of affection of this tonsil, is hypertrophy," which statement I am sure never would have been made had he, when looking into the larynx, stopped by the way long enough to pay his respects to the base of the tongue: and in the discussion of this subject, the writer ignores conditions which in reality cause the most trouble, and lays most stress on conditions less frequently seen.

So far as I am aware, the first published investigations on this subject were made by Heymann, in the *Berliner Klinische Wochenschrift*, in 1877, since which sporadic attempts have been made by a number of laryngologists to bring the importance of the organ to the notice of the profession, which attempts have never caused any decided disturbance, either in medical discussion or in literature, so far as I am aware.

Anatomically, the lingual tonsil may be described as a not very well defined mass of lymphoid tissue, situated upon the two lateral sides of the two triangular lines formed by the circumvallate papillae, directly in front of the epiglottis, and at times extending back to the glosso-epiglottic cleft, made up of groups of lymphoid tissue, from five to seven or eight mm. in diameter, attached to the tongue by loose areolar tissue. D. B. Kyle, who has given the best description I have seen of the gland, states that there are from ten to twelve of these masses of tissue, each containing a hilum, covered with mucous membrane, a sac containing a varying num-

* American Laryngological, Rhinological and Otological Society.

ber of follicles, resembling much the patches of Peyer in the intestine. This region is highly sensitive, capable of causing much reflex disturbance, and where emesis results from the introduction of foreign bodies into the throat, it is quite probable that it is the contact of the lingual tonsil which causes the regurgitation.

Unlike the pharyngeal and faucial tonsils they are not most active in childhood, and seldom appear to cause trouble before the age when these glands should disappear, their various disturbances are much more often seen in those of decided nervous make-up, and in the female sex, though not exclusively.

The diseases of the lingual tonsil of which I wish to speak, are acute catarrhal inflammation, phlegmonous inflammation, hyperplasia, varicoses and tumors.

The causes of acute catarrhal inflammation: It is said to follow the acute exanthemata, particularly whooping cough, scarlet fever and influenza, but inasmuch as the former are seldom seen in the adult, their opportunities are limited, as cause. As stated above, I believe that nine-tenths of the cases are seen in the female, over twenty years of age, and nearly all of neurotic make-up, and very often associated with some form of indigestion and bowel irregularity. Nearly all writers use the stereotyped phrase, "acid indigestion," and this may be true in a certain number of cases, but it has not been a prominent complication in the cases I have observed. I believe, however, that gouty and rheumatic conditions predispose to the catarrhal state.

Acute catarrhal inflammation is characterized by an increased secretion of mucous, an unpleasant sensation on swallowing, or some difficulty in performing the act, the patient complaining of the feeling of a foreign body in the throat. A number of writers state that patients complain of the sensation of "swallowing over something," though I have never heard the expression. Several writers state that this, and some other of the diseases of this gland, are the real cause of the globus hystericus, and though the two conditions may, and do coexist at times, I do not believe that they stand in the relation of cause and effect. In many cases there is a persistent tickling in the throat, when associated with enlarged uvula. I have seen the uvula amputated with the promise that it would relieve the disturbance, but without that result. With these symptoms there is also a spasmodic cough which is often persistent. Patients often present themselves with a history of much prescribing for the cough, of course with indifferent results. Many complain of throat ache, made worse by eating, and the taste may be impaired or lost. Another symptom often seen is hoarseness, at times nearly amounting to aphonia, and this without any change in the larynx, either motor, congestive, or inflammatory which could cause it, and which will be promptly relieved with the relief of the lingual condition.

Examination of the region will reveal a fullness and an apparent edema of the region, at times the papillae appear numerous and quite large and elevated, sometimes it is more apparent on one side,

and at others will be uniform. The submaxillary glands may be moderately enlarged, and as stated above, the uvula may also be large and relaxed. Numerous small hemorrhages into the mucous membrane are often seen, these may be as small as a pinhead, or as large as three or four mm. in diameter. It will usually be noted in this condition, that the patient is especially apt to complain of something pricking, or sticking into the throat, and it has seemed to me that this symptom is caused by the pressure of the hemorrhage upon the delicate nerve endings here, and inasmuch as the base of the tongue has the same nerve supply as the interior of the larynx, including the vocal cords, the cause of the reflex dysphonia and aphonia is evident.

In the treatment of acute catarrhal lingual tonsillitis, all constitutional causes and associated disturbances should be relieved, whether gastric, intestinal or metabolic, and some reliable astringent applied twice or three times a week. Of these, zinc sulphocarbolate in 1% to 2% solutions, zinc chloride, 2% daily; tincture of benzoin compound and boro-glycerine equal parts, or tincture of iodine twice or thrice weekly are useful; but my own favorite application is 20-30% chromic acid, or trichloroacetic in the same strength with about the same frequency.

Phlegmonous inflammation of the lingual tonsil is not frequent; however, when it occurs, its onset is sudden, accompanied by pain, in the region of the hyoid bone, increased by attempts at swallowing, or drawing forward the tongue. The throat is painful, which also radiates up the side of the throat and into the ears, and salivation is excessive. Examination shows intense swelling at the base of the tongue, and at times including the uvula. Pus forms rapidly, and the abscess may rupture spontaneously.

Cause: Usually associated with, or following injury to the faucial or lingual tonsil, or inflammatory condition of the adjacent parts.

Treatment: Resolves itself into the rapid evacuation of the pus with the knife, and this should be done as soon as possible to avoid spontaneous rupture of the abscess, with the possible embarrassing result.

Varicoses of the lingual tonsil. Lenox Browne has dignified this condition by the name of lingual hemorrhoids. The condition consists of a variable, usually a considerable number of veins, running back from the dorsum of the tongue to the glosso-epiglottic sulcus, varying in size from those just distinguishable, to 3 mm. in diameter, and from their appearance would suggest some obstruction to their outflow, either some pressure or some cardiac lesion of importance, and yet in these cases it seldom is true.

This condition is seen in the female sex, over 30 years of age, usually of a neurotic temperament, though not always, and D. B. Kyle states that pregnancy, the menopause and alcoholism are predisposing factors.

The symptoms are those of local and reflex irritation and pressure. Cough and the feeling of a foreign body in the throat, and nearly constant

desire to clear the throat are common: and occurring in the neurotic individual, always aggravates the condition. In certain cases, these large veins rupture, causing seldom dangerous, though annoying hemorrhage. As previously stated, cough is a frequent symptom, which if accompanied by hemorrhage of any degree seems to the average patient ample evidence of pulmonary tuberculosis, and it may tax the skill of the attendant somewhat to convince the patient otherwise. While the majority of the patients with large veins at the base of the tongue, are much annoyed by them, it is not very infrequent to see them in a patient, otherwise well, in whom they seem to cause but little discomfort.

The treatment is simple, and rather efficient. Without doubt, the best measure in the large variety, is the careful use of the galvano-cautery by which we can obliterate the veins: used not too freely, lest we cause an edema of the parts, especially of the epiglottis. Much can be done by the use of the chemical cautery, or astringents, carefully applied, and here again, the chromic acid, in 30-50% solution, applied several times, three or four days apart in the milder cases has served me well: in the meantime we must not forget the other general disturbances, gastric or intestinal, which are so frequently associated.

Hyperplasia of the lingual tonsil, while less frequently seen than the acute catarrhal, or the varices, is by no means uncommon, and when it exists, is capable of affording much disturbance, and it is my belief that lack of recognition of the condition has been the cause of much unnecessary anxiety, both on the part of the surgeon and the patient. The hypertrophy of this organ may be said to consist of a hyperplasia, both of the glandular and the connective tissue of the part.

The symptoms of hypertrophy of the lingual tonsil do not differ greatly from those of the foregoing conditions: the feeling of the presence of a foreign body in the throat, with more or less constant desire to clear it, pain radiating up the sides of the throat, or down into the larynx or trachea, or the interscapular region are common. The voice, easily fatigued when singing or speaking is frequent, and at times, without hoarseness or hysterical manifestations, there may be loss of voice. In others the voice loses its reliability, both as to its continuance and as to power, and breaking while singing or speaking. If the patient is a vocalist he is likely to sing out of tune, while the timbre is impaired, and the range contracted. Cough, worse at night, is a common symptom, and manifesting itself in two forms: one, violent and spasmodic, the other an incessant, or hacking at short intervals, and many of these cases present themselves with the belief that they are suffering from laryngeal tuberculosis when it does not exist. Some observers state as their belief that this condition is the frequent cause of the symptom globus hystericus, and this is possible, though I have not found it sufficiently often to lead me to feel that it is anything more than a coincidence. Inasmuch as hyperplasia of this organ quite frequently accompanies various nervous states,

it is not unlikely to occur in hysteria, though I do not believe it is responsible for the symptoms referred to. In certain cases there will be marked dyspnea, asthmatic in character, and should the patient be a neurotic, the disturbance will be much greater. Cases of hyperplasia of moderate degree, are occasionally seen, which seem to give but little disturbance, though in my experience, these are infrequent.

Causes of hyperplasia: By far the greater number of these cases are seen in the female sex, with a neurotic make-up. With these are the various circulatory disturbances dependent upon some cardiac lesion, renal and hepatic insufficiency, gastric and intestinal disease: and its frequent association with nasal obstruction has led McBride to conclude that it was dependent upon this condition, though later students in this field have not been able to verify his conclusions.

Examination of the parts shows in the lateral triangles at the base of the tongue a considerably elevated area, at times sufficient to press back the epiglottis; this may be greater on one side, or fairly evenly distributed. Often it appears to consist of a large number of hypertrophied follicles, at others it may be smooth and edematous in appearance like a distinct tumor, and it may, or may not involve the surrounding structures. The treatment resolves itself of relieving all constitutional diseases upon which it may be found to depend as soon as possible, and at the same time the hypertrophy, if large, should be reduced by some of the instruments devised for the purpose, or by the careful use of the galvano cautery. If moderate in amount, some of the mild cauterant applications may be used, such as dilute hydrochloric acid, or a 40% solution of chromic acid, or a 20-40% solution of trichloroacetic acid will answer very well. Referring to a single case, briefly, of this disease, I would report as follows: Miss A., single, aged about 30, of usually good health, had been in attendance upon a case of pulmonary tuberculosis for some months: following which she developed a cough with loss of weight, a decided neurotic, and had so much of the history of tuberculosis that in spite of the lack of temperature disturbance, and bacilli in the sputum, and with questionable chest findings, was placed upon tuberculin, and other general treatment for pulmonary tuberculosis for a number of months by a very excellent medical adviser in the town in which she lived, so confident was he that pulmonary tuberculosis existed, but without any especial improvement. When the throat was examined, the lingual tonsil was found quite large, the reduction of which without any other special treatment, except for the nervous state, was rapidly followed by relief of the cough, with rapid improvement in general symptoms and weight, which has continued for at least a year.

Tuberculosis is found to attack this gland primarily, from time to time, though I am of the opinion that it is exceedingly rare: though enlarged lingual tonsil, as stated by Freudenthal, associated with pulmonary tuberculosis is not uncommon, which statement I can verify, also that the treatment will greatly mitigate the troublesome cough.

Of the tumors of the lingual tonsil, the following have been recorded: Angioma, fibroma, lipoma, and occasionally an accessory thyroid gland. This latter is an extremely rare condition, but as a possibility it should be borne in mind, as on one occasion, as reported by Raynor, the tumor was reported to be malignant by a pathologist who advised the radical removal of the tongue and larynx. The tumor was snared off, the patient watched for two years, at the end of which time no return was observed, and the patient was discharged.

THE ABSENCE OF BRAIN TUMOR SYMPTOMS IN CASES OF TU- MORS OF THE BRAIN.

By W. F. BEERMAN, M. D., San Francisco.

It is the object of this paper to direct attention to the frequent absence of the so-called cardinal symptoms of brain tumors.

The general symptoms of brain tumor—headache, vomiting, nausea, dizziness, slowing of the pulse and choked disc, when present in an individual case is in favor of the existence of an intracranial growth. They may, of course, be produced by other lesions, but in none are they so common as in tumor.

It is in the absence of one or several or all of these symptoms, however, that the diagnosis may be rendered difficult or impossible; or again it may only be late in the disease that symptoms, heretofore absent, may make their appearance. It should be emphasized that the entire absence of all general symptoms is not, in any way, conclusive evidence against the existence of an intracranial growth. The true nature of these cases may pass unrecognized unless this important fact be constantly borne in mind.

In the case of H. S., in whose brain autopsy revealed a tumor of both parieto-occipital lobes and the posterior end of the corpus callosum and a second tumor involving the left half of the worm of the cerebellum, headaches, vomiting, nausea, slow pulse and choked discs were absent during the whole course of his illness. A gradually increasing cerebellar gait gave way to total inability to stand and even with assistance it was impossible for the patient to maintain his balance. At operation, in which both cerebellar lobes were uncovered, no tumor was discernible.

The case of B., age 51, presented a somewhat similar picture. The patient first complained of a difficulty in writing. Paraphasia of a mild degree soon supervened. Then gradually the patient became word-deaf and word-blind. Hemiparesis slowly developed, terminating in complete paralysis. Hemiataxia with loss of all sensations on the right

side of the body soon became marked and a few days before operation right lateral homonymous hemianopsia was detected. In this case again, the focal symptoms were of gradual development. Headaches were occasional and it required much questioning to elicit their presence. He had but 2 or 3 dizzy spells, which were associated with vomiting. Choked discs were absent. The pulse rate was normal. At operation an angio-sarcoma was removed from the left superior temporal and supramarginal gyri.

These 2 cases teach the lesson that a gradual development of symptoms, focal in nature, wherein a gradual intensification of the then existing symptoms is noted day by day, or week by week, or where slowly, or possibly rapidly, signs develop pointing to an invasion of neighboring brain tissue, is, even in the absence of all general symptoms, suggestive of tumor, irrespective of the location of the lesion. Abscess, softening, cortical meningitis, encephalitis, etc., may likewise produce this picture, thus rendering the differential diagnosis exceedingly difficult.

Bonhoeffer, in a recent publication, emphasizes the difficulty in differentiating between brain tumor and progressive cerebral softening. In one of his cases of progressive softening, in which choked disc was present, operation was performed with the view of uncovering a tumor, but autopsy revealed the diagnostic error.

As an illustration of the length of time that general symptoms may be absent, I will cite the two following cases of tumor of the fourth ventricle and cerebellum. It may be said that the vomiting in these cases was rather a focal than a general symptom. The symptomatology and course of these two cases were so nearly identical that I will describe them conjointly.

L. Z. and R. W., age 35 and 32 respectively. Their illness was ushered in with vomiting and dizziness, which from the very beginning was severe and intractable and occupied the whole of the clinical picture during the greater part of their illness. Eight months after coming under observation in the case of L. Z. and nine months in the case of R. W. papillitis and focal signs of brain disease made their appearance. Coincident with the choking of the optic discs, the headaches became very frequent and severe. In neither of these cases was any marked slowing of the pulse rate observed, until very late in the disease.

In the case of A. C., age 12, with an immense endothelioma of the right foot center which had existed three or four years or more until his death on the operating table, the general symptoms were conspicuous by their absence. Only now and then would he have an attack of sick headache, such as his parents alleged he was subject to since infancy. The greater part of the time he was free from headache, vomiting or any other distress except what the Jacksonian fits caused him. When first seen, choked disc was well marked. This subsided considerably after several months and at no time until his death did his discs show the degree of

swelling noted during the earlier period of his illness.

In another patient with a tumor of the left foot center, the disease had existed for four years, and during this whole time he had never complained of headache, nausea, vomiting or dizziness. There was no choked disc. It may be mentioned that the skull was uncommonly tender to pressure.

An infiltrating angio-sarcoma of the right motor area, in the case of A., which had ended in a complete paralysis of the left side, had never caused the slightest pain in the head. Nausea, vomiting and dizziness were likewise absent and the optic discs were normal.

Tumors of the frontal lobes, even when they attain great size may run their course without exciting all of the general symptoms.

Mrs. R., in whom a tumor weighing 187 grms. was removed from the left frontal lobe, was exceedingly good-natured and did not behave like a woman who was suffering. The headaches were insignificant and she never suffered, but little, from vomiting or dizziness, and that only after the tumor had attained its enormous size. Post-papillitic atrophy, however, was present. This patient had been treated for a year for Bright's disease.

In a patient seen at the City and County Hospital with a brain tumor of metastatic origin, focal signs were present pointing to the right frontal lobe. In this case likewise, headaches, nausea, vomiting and dizziness had never been complained of. Double choked discs were marked.

Mrs. L., from whom an endothelioma was removed from the left frontal lobe had been subject to paroxysms of headache; in the intervals between she appeared to be well. The headaches were very severe and ran the course of a typical migraine, which it was at first thought to be.

Only in the last severe headache she experienced did she vomit. The discs were both choked. The pulse rate was normal.

Nausea and vomiting are frequently absent even when the tumor is situated beneath the tentorium.

J. B. had a tumor of the cerebello-pontile angle of many years' standing with choked discs coming on late in the course of the disease. For several years he had complained of hearing buzzing sounds in his right ear and this, with an impairment of hearing, had persisted throughout his illness. Cerebellar seizures were frequent, but he had never suffered from headaches or vomiting, and at no time had he been dizzy.

In the case of G. M., who had a tumor in the same region, the symptoms corresponded closely to those of the patient just related. The discs, however, were normal. He was always in good humor.

K. D. had a slight headache six or eight months before being seen. For some months—she could not say how many—her head bothered her—she couldn't say what she meant by bothered—except that the head did not feel right. She stated positively, however, that she did not have headache. Double papillitis going on to atrophy was present in both eyes. She became dizzy at times and on one occasion fell to the ground. She had never vomited.

For several months previous to observation, she was under the care of an aurist for left-sided deafness of eight months' standing.

F. C., 45 years of age, had sharp shooting pains on the right side of his head, which were persistent, but not always equally severe. This was associated with a diminution of hearing on the right side. Dizziness was constant and he had a marked staggering in his gait. The 5th, 6th, 7th and 8th nerves on the right side were involved. Papillitis was absent. Oppenheim in his differential diagnosis between intrapontile tumors and tumors of the cerebello-pontile angle draws attention to the absence of choked discs in the former. Starr had described a similar observation. These observations had led Dr. Newmark, in this case, to diagnose a tumor of the pons,—which was verified at autopsy.

G. S. had choked discs due to a large tumor in the right fronto-temporal region. He had never vomited, nor had he ever complained of headaches. He was in perfect comfort until he went into coma.

Mrs. T. was a patient from whom a cancer of the breast had been removed. Two years afterwards and near the end of pregnancy, had a general convulsion. A few days later she gave birth to a healthy child. For a month or more she had temperatures as high as 103° F. The knee-jerks were absent; she had paraphasia but no choked discs and no headache or vomiting. At post-mortem an extensive carcinosis of the duramater was found.

I would like to say a few words regarding the characteristics of certain headaches in these conditions.

In the case of Mrs. G. with a generalized carcinosis of the piaarachnoid, the headaches were nearly constant and so severe that she could not leave her bed. The headaches were general and were not associated with vomiting or disturbance of vision. She described the headaches as being "in the scalp," and the mere brushing of her hair, in an interval of freedom from suffering, was sufficient to provoke a paroxysm of severe pain. The scalp was so tender to pressure that during the earlier part of her illness, it was thought to be a gouty affection of the scalp.

From the citation of these several cases, it is evident that the absence of important general symptoms is frequently met with, and that if the possibility of diseases within the cranial vault is not constantly borne in mind, errors in diagnosis will result.

To the otologists I would make the plea to carefully examine all cases complaining of one-sided loss of hearing and noises in one ear,—symptoms which may precede other indications of tumor of the cerebello-pontile angle by many months or years,—particularly in those cases in which these symptoms are of gradual onset and slow development.

I would also make the plea to the general practitioner that every case be submitted to an ophthalmoscopic examination.

I desire to express my thanks to Dr. Newmark for permitting me the use of his material in the preparation of this paper.

AN INSTANCE OF HYPERSENSITIVE- NESS TO HOMATROPIN.*

By DOUGLASS W. MONTGOMERY, M. D., San Francisco.

A doctor, aged fifty and in excellent health, had a drop of a weak solution of cocaine followed by a wafer containing cocaine and homatropin as one-fiftieth of a grain, put into his eyes by an oculist on Saturday morning, April 17, 1909. On Sunday afternoon a well-circumscribed, bright red, raised, edematously thickened patch appeared on the penis and scrotum. The patch was very itchy and tinglingly hot. On Monday a red patch appeared on the dorsum of the right foot, having the same characteristics as the condition on the privates. On Tuesday the trouble on the privates continued in the same intensity, and the anus felt dry and hot. On Wednesday morning there appeared two red papular patches over the front of each thigh. The feces were now dry. The small toes of the right foot became red, swollen, hot and itchy, and the sputum was now noticed to be a little stickier than normal. The dilation of the pupils, to accomplish which the drugs had been administered, had by this time almost entirely disappeared. On April 23, six days after the medication, the eruptions and itchiness were rapidly decreasing, but the skin had still a dry, hot feeling, and for two days the tongue had been rough as felt against the palate; it tingled slightly, and there was a sweetish taste in the mouth.

The doctor first thought he was suffering from an attack of poison oak. But as the eruption developed he feared he was going to be a victim of neurotic eczema, a most stubborn affection, and it was a few hours before the true explanation of the trouble became clear.

There can be no doubt that the disturbances in this case were due to the homatropin, although we have no reports of eruptions caused by this drug. It is well known, however, that atropin and the other drugs of its class can give rise to just such eruptions, and, in the case in hand, the symptoms occurred coincidentally with the dilation of the pupil and subsided with its contraction, and they were erythematous, and consequently vasodilatory, and therefore in accordance with the vasodilatory eruptions of belladonna and atropin. In fact, the patches on the skin were more characteristically vasomotor in their appearance than most of the eruptions ascribed to belladonna, as they were not alone bright red, but also edematous and circular, their circularity corresponding to the terminal branches of an arteriole tree.

There is a tendency now to ascribe these poisonings to anaphylaxis. In the present instance, however, there was no previous administration of the drug to bring about an artificial sensitiveness. The drug naturally acts as an excitant of the nerves governing respiration and circulation and paralyzes the organs supplied by the autonome nerves,¹ and in the present case these nerves and organs were more than ordinarily sensitive.

A number of instances of poisoning through the instillation of atropin solution into the eye have been reported, but they are relatively rare, considering the frequent use of the drug by oculists. As homatropin is very much weaker than atropin, poisoning by it would be all the more rare, and the symptoms in the present case, arising from its em-

ployment as a mydriatic, would indicate a high degree of susceptibility in this patient. If we refer again to our knowledge of atropin and belladonna as enlarging our knowledge of homatropin, we find that the range of tolerant dosage of atropin is very great. Roschtsky relates an instance when one drop of one to one thousand solution of atropin instilled into the eye caused symptoms of intoxication. In another, two drops of a one per cent. solution brought on a crisis of angor pectoris in a patient who previously had suffered from angina of the chest.²

Striking peculiarities in this case were the patchy form of the eruption, and its situation on the privates and lower extremities. The picture of acute, severe belladonna poisoning is well known. The pupils are widely dilated, and this, together with the flying pulse, quick breath, incoherent rapid speech, flushed face, that often reddens to the extent of being a scarlatina-like eruption, gives the appearance of wild unbridled forces, resembling the delirium of high fever. When an eruption occurs it is almost always on the face, hands, neck or trunk. In fact, Michelet says it never appears on the extremities.³ On the other hand, Knowles says that the great majority of cases exhibit the erythematous or scarlatina type of eruption, which is more frequently found on the face or upper portion of the body, but that in a fair number of cases the outbreak is generalized.⁴

The eruption, as indicated above, is almost always diffuse, resembling that of scarlet fever, with which it is often compared. Of a number of text books consulted in studying this case, Stelwagon's is the only one that mentions the occurrence of patchy, erythematous areas or flushings.⁵

The inhibition of the secretions, so well known in belladonna poisoning, was quite marked in this case of homatropin poisoning. The mouth was dry, the skin was dry and uncomfortable, the anal opening felt dry and hot, and the feces became dry. The dryness of the mouth and the dryness of the skin are well known effects of the administration of belladonna, that are taken advantage of therapeutically in controlling both sialorrhea and hyperidrosis. The drying up of the secretions of the stomach and intestines is, however, rarely taken into consideration in giving the drug, and yet it is a most important matter, and undoubtedly often gives rise to what v. Anrep and Marandon de Montyel designate as chronic belladonna poisoning, characterized by loss of appetite, emaciation and loss of weight.⁶ Furthermore, it was long ago pointed out by v. Graefe that the continued instillation of atropin into the eye will produce general erethic weakness, and lowering of the power to assimilate food.⁷

Acute constitutional belladonna poisoning is very rare with oculists because the dose employed is very low, and few patients are so highly sensitive to the drug as the one the case of whom is here reported. Oculists, however, run the danger of administering atropin as a mydriatic to patients who are already taking the drug in very considerable doses as an antispasmodic in laxative pills, in

* Read before the Medical Section of the San Francisco County Medical Society, September 3, 1912.

which case the small additional amount given by the oculist may bring on alarming symptoms.

From what has been said of the danger of chronic constitutional poisoning in the prolonged administration of belladonna, it follows that its daily use in laxative pills may be most fateful in bringing about a lowering of the vital forces and therefore accelerating the symptoms of old age, and inviting bacterial attack. In this way belladonna may render the treatment of a disease of the skin, say of an eczema or a lichen planus, completely nugatory. And in these diseases it is not alone the lowering of the nutrition, but also the belladonna erethism, mentioned by v. Graefe, that is of importance in nullifying all efforts to give relief.

In conclusion it is desired to draw attention to the fact that belladonna and its nearly related plant species and their alkaloids should always be prescribed with a definite object in view, and when this object is attained, or hope of attainment relinquished, the use of the drug should be stopped. In giving the drug for any one object all the other phenomena induced by the drug should be considered, and their occurrence noted. As Michelet says, in giving belladonna it is necessary for the physician to keep his eyes wide open, lest the patient should open his eyes too wide. On no account should this powerful drug, with its wide range of dosage in people of varying susceptibility, be employed regularly and for long spaces of time as an anti-spasmodic in laxative pills, given, as is generally the case, by the physician and taken by the patient as a mere luxury to prevent disagreeable griping, and without any reference whatever to the other actions of the drug.

Discussion.

Dr. E. D. Chipman: We employ powerful drugs many times when something else would answer as well. Such drugs as antimony, known to have a depressing effect on the circulation, are used in acute inflammatory skin diseases when we could arrive at the same result by using Epsom salts.

Dr. J. Cameron Pickett: A case similar to the one cited by Dr. Montgomery came under my observation recently. A young man was sent to me by a general practitioner with an erythematous eczema on both legs and arms, which itched intensely; the skin over the whole body was extremely dry. The case had resisted former treatment. I practically continued the same treatment but stopped the use of a patent "asthma cure," because I had found that the skin symptoms had appeared soon after he had begun taking the "asthma cure." I do not know the constituents of the "cure," but presume that the erythema was due to the presence in it of homatropine or of something similar.

Dr. Montgomery, closing discussion: One of the most important matters in all these cases is the recognition of the eruption as being due to a drug. The symptoms of atropin poisoning are, however, quite well known. One of the most impressive things to me about the present case was the effect of the drug on the alimentary tract. Here it acted as a true hypocrinic, diminishing the secretions through its paralyzing effect on the autonome nerves. If this drug is given as an antispasmodic to stop the griping effect of a laxative pill, it must also act as a hypocrinic. That this hypocrinic action is so slight as not to be appreciated in the daily movements of the bowels is not the point. It may even be masked by that other effect of

belladonna in increasing the action of the smooth muscle fibres of the intestines. Diminution of secretions, nevertheless, is present, and being chronic when the drug is chronically given, as in laxative pills, its effects are in my judgment most grave. I am sure in diminishing the secretions of the organs it hastens the phenomena of old age. It is surprising how quickly women will cease using those pills when once informed of this fact.

¹ Die Experimentelle Pharmakologie v. H. Meyer u. R. Gottlieb, II Ed., S. 24 u. 140.

² Cited by Alfred Martinet in Les Medicaments Usuels, 3d Edition, Page 277.

³ Loc. cit.

⁴ Generalized Eruptions of Unusual Type Caused by Absorption from a Belladonna Plaster and from the Ocular Instillation of Atropin, by Dr. F. C. Knowles, American Journal of Medical Sciences, July, 1911.

⁵ Diseases of the Skin, 5th Edition, p. 425.

⁶ Quoted by Meyer u. Gottlieb. Loc. cit.

⁷ Graefe's Archiv. 1863, Bd. 9, T. 2, S. 71, also quoted by Meyer u. Gottlieb.

RAYNAUD'S DISEASE—REPORT OF A CASE.*

By LEWIS SAYRE MACE, M. D., San Francisco.

A healthy young woman, 24 years old, applied to the San Francisco Polyclinic complaining of constipation. In the course of her history it developed that she had been troubled for the past two years by attacks of what she called "dead fingers." The first three fingers of each hand would on exposure to cold, or bathing in cold water, become tingling, numb, and finally a dead white and entirely devoid of sensation. In the course of an hour this would pass off, and the peculiar condition occasioned her no discomfort and but little curiosity.

No physical abnormalities were found. Blood and urine were negative, and systolic blood pressure was 120 mm.

This description of dead fingers occurring at intervals, usually on exposure to cold, and affecting the same fingers of each hand, corresponds to the first stage of the disease described by Raynaud in 1862: the stage of local syncope.

The patient before us is a man 48 years old. About a year ago he noticed that upon exposure to cold, or bathing his hands in cold water, certain fingers of each hand would become numb or dead in the manner previously described, but with him the symptoms proceed still further. The fingers, after remaining white and dead for a time, become a dull, deep blue black. No pain is present in this particular instance but the appearance is that of a serious affliction and the imminence of tissue death is apparent. The attacks usually occur most frequently during cold weather or upon bathing with cold water. He may be free for weeks or have several attacks in the course of a day. They are sufficiently annoying to seriously hinder him in the pursuit of his occupation, that of a barber. This condition seems to correspond to the second stage of Raynaud's disease: the stage of local asphyxia.

When tissue death does actually occur, blebs filled with serum appear on the surface of the affected members, areas of superficial necrosis develop, and the third stage, or stage of local gangrene, is present.

On physical examination this patient presents but little of clinical interest. He is 48 years old. His family history is clear, and aside from the ordinary diseases of childhood he has had no illnesses except an attack of jaundice one year ago which lasted two weeks. Urine and blood examinations show no abnormalities and the Wassermann test is not positive. The elimination of urea is not diminished. He has a fairly well marked arteriosclerosis—the radial artery is moderately sclerotic, and the temporal arteries are

*Read before the Cooper Clinical Society, February 3, 1913.

visible and somewhat hard. His systolic blood pressure is slightly under 150 mm. On reducing this pressure to 125 mm. with nitrites and maintaining it at this level, we are able to see no effect upon the symptoms.

No anatomical cause has been found for true Raynaud's disease. Cases resembling it in characteristic symptoms due to obliterative arteritis must be excluded from this classification. Buerger has reported a series of cases in which a thrombo-angitis obliterans was the causative factor, but these cannot be accepted as true Raynaud's disease; these symptoms may be due to the vascular crisis of Pal occurring in the course of arteriosclerosis, but as no particular high blood pressure is present, and as there is no rise of blood pressure before or during the attacks, I think this cause can be eliminated.

Raynaud's disease does occur in the course of various diseases characterized by cord degenerations, but these abnormalities are not present with a sufficient amount of regularity to indicate that they have any causal significance.

We have then as the sole remaining explanation of these symptoms, a vasomotor spasm of unknown cause, often but not always excited by cold, occurring in patients who present no regular or characteristic physical abnormalities.

The symptoms resemble, anatomically and clinically, the effect of frost bite or chilblain, except that the causative factor lies not in exposure to extreme cold but in the undue response of the vasomotor nerves to mild stimuli.

We may perhaps be justified in assuming that owing to some unknown physical change, possibly the presence of bacterial toxins, the vasomotor center is under certain conditions unduly affected with the resulting syncope, asphyxia and gangrene. In the patient under consideration I would note that he is markedly under weight for his height. His appetite is good and food supply sufficient, but general bodily nutrition is below par.

An intradermic injection of tuberculin is followed by a well marked area of necrosis. This is probably of significance, how much or how little we do not know; but it may possibly be taken as indicating a high degree of hypersusceptibility to this toxin due to some hidden focus of infection.

As to treatment, the indication is to maintain the bodily nutrition at as high a point as possible, and to protect the extremities from exposure to cold. Repeated physical examinations must be made with a view to disclosing, if possible, some pathological condition which may account for the symptoms.

Discussion.

Dr. H. C. McClenahan: Dr. Mace says his patient has a "moderate degree of arteriosclerosis"; I think it would be a little dangerous to apply the diagnosis of Raynaud's disease in the presence of organic vascular disease. My understanding of this syndrome is that it is a true angiospasm, and organic disease of the arteries must be excluded before the term can be applied with safety. In connection with this class of cases, I am reminded of a very interesting case of thrombo-angitis obliterans of Buerger, which I demonstrated to the San Francisco County Medical Society about a year ago. The case was presented at the clinic in the morning, and although he had a return railway ticket to Portland that night, we "ran him in" for a brief demonstration. This poor fellow had successively lost all his toes and most of his fingers. He had no pulse in either radial artery, though clinically he presented, and the history indicated, a typical Raynaud's disease.

Dr. W. F. Schaller: I would like to support Dr. McClenahan's stand. In the original publication of Raynaud he makes a point that his case showed the absence of any vascular lesion. This man is 48; it is very exceptional in Raynaud's

disease for the patient to be over 40, they are usually 25 or younger. Raynaud called the affection juvenile gangrene, and Cassirer made a point of this in his book *Vaso Motor Neuroses*. He claims a great per cent. of cases in childhood and even in infancy. This man has never had attacks of severe pain. Pain is a prominent symptom in Raynaud's disease. It is not necessary, as Dr. Mace said, to have gangrene; there can be local syncope only, as is present in this case. We see a good many cases of local syncope in the clinic, but not of Raynaud's type; for instance, intermittent claudication and acrocyanosis. Neither do I think that cases of dead fingers are to be confused with cases of Raynaud's disease, which comes on spontaneously without direct cause; it seems that this man has a provoking cause in the cold.

Dr. L. S. Mace, closing discussion: This man has arteriosclerosis, but it is not more marked than we see in a large proportion of clinic patients who have worked hard all their lives. It cannot of course be proved that the symptoms constitute true Raynaud's disease. Endarteritis cannot be excluded clinically, but for the reasons mentioned I am led to believe that the symptoms are not due to vascular change.

SUBLIMATE POISONING; A CASE REPORT.

By F. F. GUNDRUM, M. D., Sacramento.

Accidental poisoning with bichloride of mercury is not a sufficiently rare occurrence to excite any very great comment or, perhaps, justify a written report. Some half dozen discussions have appeared, however, within the last two years in various American and European journals. The great facility with which this drug may be obtained by the laity and the very general lack of appreciation of its dangers when used as an irrigation or external application may justify the record of one more accident.

Mrs. E.—Admitted to the Sacramento County Hospital, June 28, 1912.

C.—Sore mouth; nausea; anuria.

F. H.—Unimportant.

P. H.—Not remarkable; married two years ago; never pregnant; accustomed to take douches with "antiseptic tablets" as preventive to conception. One week before admission, at close of menstrual flow, patient used hot douche "for cleanliness" putting "one large antiseptic tablet (0.5 gram) into about two pints of water" (making approximately a 1 to 2000 solution).

P. I.—Began five days ago (two days after douche) with nausea, diarrhea, vomiting, pain in abdomen, no fever. On second day of illness anuria developed which remained complete until admission to the hospital four days later.

P. Ex. (On admission.) Well nourished young woman, rational, seems sick, temperature 97.8, skin clear.

Mouth—On under surface of tongue and on gums are scattered eight or ten grayish ulcers from 0.5 to 1 cm. in diameter; removal of slough shows bleeding base; culture negative for any specific organism. Head otherwise clear.

Thorax—Not remarkable. Heart sounds clear—pulse 86; very full volume; tension rather high (BP. systolic 140 MM).

Abdomen—Flat, symmetrical, no muscle spasm, slight diffuse tenderness, considerable intestinal gurgling, rather marked tenderness over both kidneys.

Pelvis—Vulva and vagina show large superficial ulcer extending practically over the whole vaginal mucosa with gray membrane and raw bleeding base. Cervix not softened—fundus not enlarged—anteponed—slightly tender. Left tube slightly tender. Extremities not remarkable.

On account of nausea and general gastrointestinal irritation, the absorption of water was

difficult. The patient was kept very warm, given warm water by bowel continuously and 500 CC of normal salt solution under the skin twice in each twenty-four hours. On the third day after admission, seven days after the onset of anuria, she voided 300 CC of bloody urine loaded with epithelial and blood casts. For a few days her condition appeared much improved but a very considerable amount of infection at the ulcer sites with fever developed. There was also some oozing of blood from the ulcer surfaces and bowel. She died on the tenth day after admission, the seventeenth day after taking the douche. Autopsy was refused.

We were at first quite doubtful as to the accuracy of the history obtained. Careful questioning of relatives and friends failed to discover any reasonable cause for suspicion. The severity of the intoxication seems out of proportion to the amount of mercury used. The patient may have forgotten the exact number of tablets put into this particular douche.

REFERENCES.

1. Franz—Art a. d. k. Gsudhtsamte Berlin, 1910. XXXIV. 1, 16.
2. Angier, G.—*Jour. Med. de Lille*, 1911. II, 515.
3. Jones E. F.—*Boston Med. & Surgical Journal*, 1910. CLXII, 139.
4. Spooner, J. W.—*Boston Med. & Surgical Journal*, 1910. CLXII, 138.
5. Tomellinie, L.—*Gen. Med. Genova*, 1911. IV, 272.
6. Schildecker, C. B.—*Amer. Jour. Obst.*, 1911. LXII, 473, 5.
7. Chadzynski—*Rev. Gen. de Chir. et de Therap.*, Paris, 1911. XXV, 310, 2.

A CASE OF ANGIONEUROTIC EDEMA CURED BY INJECTIONS OF HORSE SERUM.*

By FRANCIS WILLIAMS, M. D., San Francisco.

Baby Catherine—born without accident—breast feeding after the 6th month supplemented with fruit juice, broths, crusts, etc. Weight, general development, and teething normal to 10th month, time of attack.

Family history of interest. Father 6 weeks prior became violently insane and was committed to Agnews—had a similar attack earlier in life. The quality of the breast milk may have been affected by worry and excessive work on the mother's part.

History of attack. July 8th, '12, a sudden onset of rather purpuric edema caused marked swelling of both feet and legs below the knees with rectal temperature between 102° and 104° F. Tentative diagnosis was purpura rheumatica and appropriate treatment was instituted. In rapid succession the hands, forearms, forehead and side of face swelled, but the face lesions were free of purpura. Because of the subcutaneous hemorrhagic marks plain serum 10 cc. was given 3 times between July 12th and 16th; the purpuric lesions disappeared, there was slight febrile abatement, but the edema persisted in the lower limbs and moved slowly over face, scalp, and neck, fortunately avoiding the glottis, but closing the eyes at times.

Case was referred to Drs. H. D'Arcy Power and Howard Morrow by whose courtesy the diagnosis of angio-neurotic edema was made. The massive edema, the purpuric element, and the high fever made necessary a differential diagnosis between purpura rheumatica and purpuric angio-neurotic edema. The child was given large doses of citrate of sodium, the gastro-intestinal tract cared for dietetically and medicinally, and a skin lotion applied. The condition remained stationary with continued fever, and by the end of the month purpuric areas again appeared in the edematous lower limbs and about the neck. A final injection of 10 cc. normal serum was given, though 15 days had elapsed and anaphylaxis was considered a possi-

bility. Recovery was immediate, the following day the temperature was normal, in 48 hours edema was absent and has not returned since.

By way of summary we have then this picture—a child with paternal neurotic parentage, nutrition normal to the 10th month, suddenly develops persistent marked purpuric edemas, with remitting fever resisting anti-rheumatic alkaline, and intestinal antiseptic treatment—given three 10 cc. doses normal serum with slight relief, but promptly relieved by a final dose of serum given 15 days later. Unfortunately no blood count was made—a mild degree of anemia appeared to exist.

Interesting observations include absence of any mucous surface hemorrhages such as characterize purpuras or hemophilia; the fever dependent possibly upon blood disintegration or possibly upon autointoxication of intestinal origin; the food sufficient in quality may have been disturbed by maternal worry and possibly too much table feeding; but most suggestive is change of a purpuric character in the blood of a child angio-neurotic through neurotic parentage; the efficiency of the normal serum argues favorably for such a view. And the efficiency of the final dose after a 15-day interval causes further reflection upon the possibility of a mild degree of anaphylaxis being a factor, at any rate I believe this accidental spacing of the final dose rendered it more effective than it promised to be if grouped with the first three injections.

Discussion.

Dr. L. Eloesser: Dr. Isnardi asked me to see a case with him about a month ago, in which he had used horse-serum. He had circumcised an apparently normal baby four days old. Oozing from the wound had lasted all day, and when I saw the baby in the afternoon the dressings were soaked with blood that showed no vestige of a clot. Dr. Isnardi had used horse-serum. This seemed to stop the bleeding for a few hours, but had no permanent effect. I helped him transfuse blood from the radial artery of the father into the popliteal vein of the child. After the transfusion the bleeding stopped permanently and the child has developed normally since.

Dr. L. I. Breitstein: I would like to report a case of a pregnant woman in her 6th month who developed urticarial wheals, scattered irregularly over her face, abdomen, back, and extremities. These wheals varied in size from a pea to that of a dollar. The urine showed a measurable amount of albumen with a marked diminution of urea. We looked on these symptoms as manifestations of a toxemia of pregnancy. Human blood serum, taken from a normal healthy pregnant woman, was administered. To our surprise, we got immediate results, the trouble clearing up within 24 hours. Altogether 50 cc. of human blood serum was given hypodermically in the 24 hours.

Dr. Francis Williams, closing discussion: There is a large group of these affections that seem to have a relationship which is hard for us to establish. When the purpuric element comes into it, it seems to suggest the use of serum in some form.

Amended in Senate May 8, 1913.

Amended in Senate May 5, 1913.

Amended in Senate April 28, 1913.

Senate Bill No. 813.

INTRODUCED BY SENATOR AVEY.

January 27, 1913.

Referred to Committee on Public Health and Quarantine.

AN ACT

To Regulate the Examination of Applicants for License, and the Practice of Those Licensed, to Treat Diseases, Injuries, Deformities, or Other Physical or Mental Conditions of Human Beings; to Establish a Board of Medical Examiners, to

* Read before the San Francisco County Medical Society, October 1, 1912.

Provide for Their Appointment and Prescribe Their Powers and Duties, and to Repeal an Act Entitled, "An Act for the Regulation of the Practice of Medicine and Surgery, Osteopathy, and Other Systems or Modes of Treating the Sick or Afflicted, in the State of California, and for the Appointment of a Board of Medical Examiners in the Matter of Said Regulation," Approved March 14, 1907, and Acts Amendatory Thereof, and Also to Repeal All Other Acts and Parts of Acts in Conflict With This Act.

The People of the State of California do enact as follows:

Section 1. A board of medical examiners to consist of ten members, and to be known as the "board of medical examiners of the State of California," is hereby created and established. The governor shall appoint the members of the board, each of whom shall have been a citizen of this state for at least five years next preceding his appointment. Each of the members shall be appointed from among persons who hold licenses under any of the medical practice acts of this state. The governor shall fill by appointment all vacancies on the board. The term of office of each member shall be four years; provided, that of the first board appointed, three members shall be appointed for one year, two for two years, two for three years and three for four years, and that thereafter all appointments shall be for four years, except that appointments to fill vacancies shall be for the unexpired term only. No person in any manner owning any interest in any college, school or institution engaged in medical instruction shall be appointed on the board, nor shall more than one member of the board be appointed from the faculty of any one university, college, or other educational institution. The governor shall have power to remove from office any member of the board for neglect of duty required by this act, for incompetency, or for unprofessional conduct. Each member of the board shall, before entering upon the duties of his office, take the constitutional oath of office.

Sec. 2. The board shall be organized on or before the first Tuesday of September, 1913, by electing from its number a president, vice-president, secretary, and treasurer, who shall hold their respective positions during the pleasure of the board. The board shall hold one meeting annually beginning on the second Tuesday in January in the city of Sacramento and at least two additional meetings annually, one of which shall be held in the city of Los Angeles and the other in the city of San Francisco, with power of adjournment from time to time until its business is concluded; provided, however, that examinations of applicants for certificates may, in the discretion of the board, be conducted in any part of the state designated by the board. Special meetings of the board may be held at such time and place as the board may designate. Notice of each regular or special meeting shall be given twice a week for two weeks next preceding each meeting in one daily paper published in the city of San Francisco, one published in the city of Sacramento, and one published in the city of Los Angeles, which notice shall also specify the time and place of holding the examination of applicants. The board shall receive through its secretary applications for certificates provided to be issued under this act and shall, on or before the first day of January of each year, transmit to the governor a full report of all its proceedings together with a report of its receipts and disbursements. The board shall, on or before the first day of January of each year, compile a complete directory giving the addresses of all persons within the State of California who hold unrevoked licenses to practice under any medical practice act of the State of California, which license shall in any manner authorize the treatment of human beings, for diseases, injuries, deformities, or any other physical or mental conditions. The board is hereby authorized to require said persons to furnish such informa-

tion as it may deem necessary to enable it to compile the directory. The directory shall contain in addition to the names and addresses of said persons, the names and symbols indicating the title, name or names, school or schools, which such person has attended and from which graduated, the date of issuance of the license, the present residence of said person and a statement of the form of certificate held. The directory shall be prima facie evidence of the right of the person or persons named therein to practice. It shall be the duty of every person holding a license to practice under any medical act of this state, or who may hereafter be so licensed to practice, to report immediately each and every change of residence, giving both the old and the new address.

Sec. 3. The office of the board shall be in the city of Sacramento and in all legal proceedings against the board said city shall be deemed to be the residence of the members thereof.

Sec. 4. The board may from time to time adopt such rules as may be necessary to enable it to carry into effect the provisions of this act. It shall require the affirmative vote of seven members of said board to carry any motion or resolution, to adopt any rules, to pass any measure, or to authorize the issuance of any certificate as in this act provided. Any member of the board may administer oaths in all matters pertaining to the duties of the board, and the board shall have authority to take evidence in any matter cognizable by it. The board shall keep an official record of all its proceedings, a part of which record shall consist of a register of all applicants for certificates under this act, together with the action of the board upon each application.

Sec. 5. The board is authorized to prosecute all persons guilty of violation of the provisions of this act. It shall have the power to employ legal counsel for such purpose, and may also employ such clerical assistance as it may deem necessary to carry into effect the provisions of this act. The board may fix the compensation to be paid for such service and may incur such other expenses as it may deem necessary. It shall also fix the salary of the secretary, not to exceed the sum of eighteen hundred dollars (\$1800) per annum, and the sum to be paid to other members of the board, not to exceed ten dollars (\$10) per diem each, for each and every day of actual service in the discharge of official duties; and the board may, in its discretion, add to said sum necessary traveling expenses.

Sec. 6. All fees collected on behalf of the board of medical examiners, and all receipts of every kind and nature, shall be reported at the beginning of each month, for the month preceding, to the state controller, and at the same time the entire amount of such collections shall be paid into the state treasury, and shall be credited to a fund to be known as the board of medical examiners' contingent fund, which fund is hereby created. Such contingent fund shall be for the uses of the board of medical examiners and out of it shall be paid all salaries and all other expenses necessarily incurred in carrying into effect the provisions of this act. An amount not to exceed one thousand dollars (\$1000) may be drawn from the contingent fund herein created, to be used as a revolving fund where cash advances are necessary; but expenditures from such revolving fund must be substantiated by vouchers and itemized statements at the end of each fiscal year, or at any other time when demand therefor is made by the board of control.

Sec. 7. Every applicant for a certificate shall pay to the secretary of the board a fee of twenty-five dollars (\$25), which shall be paid to the treasurer of the board by said secretary. In case the applicant's credentials are insufficient or in case he does not desire to take the examination, the sum of ten dollars (\$10) shall be retained, the remainder of the fee being returnable on application.

Sec. 8. Two forms of certificates shall be issued

by said board under the seal thereof and signed by the president and secretary; first, a certificate authorizing the holder thereof to use drugs or what are known as medicinal preparations in or upon human beings and to sever or penetrate the tissues of human beings and to use any and all other methods in the treatment of diseases, injuries, deformities, or other physical or mental conditions, which certificate shall be designated "physician and surgeon certificate"; second; a certificate authorizing the holder thereof to treat diseases, injuries, deformities, or other physical or mental conditions without the use of drugs or what are known as medicinal preparations and without in any manner severing or penetrating any of the tissues of human beings except the severing of the umbilical cord, which certificate shall be designated "drugless practitioner certificate." A "reciprocity certificate" shall also be issued under the provisions hereinafter specified. Any of these certificates on being recorded in the office of the county clerk, as hereinafter provided, shall constitute the holder thereof a duly licensed practitioner in accordance with the provisions of his certificate.

Sec. 9. Every applicant must file with the board, at least two weeks prior to the regular meeting thereof, satisfactory testimonials of good moral character, and a diploma or diplomas issued by some legally chartered school or schools approved by the board, the requirements of which school or schools shall have been at the time of granting such diploma or diplomas in no degree less than those required under this act, or satisfactory evidence of having possessed such diploma or diplomas, and must file an affidavit stating that he is the person named in said diploma or diplomas, and that he is the lawful holder thereof, and that the same was procured in the regular course of instruction and examination without fraud or misrepresentation; provided, that in addition thereto, each applicant for a "physician and surgeon certificate" must show that he has attended four courses of study, each such course to have been of not less than thirty-two weeks duration, but not necessarily pursued continuously or consecutively, and that at least ten months shall have intervened between the beginning of any course and the beginning of the preceding course; provided, further, that an applicant for a "drugless practitioner certificate" must show that he has attended two courses of study, each such course to have been of not less than thirty-two weeks duration, but not necessarily pursued continuously or consecutively, and that at least ten months shall have intervened between the beginning of any course and the beginning of the preceding course; provided, also, that before [July 1, 1918], in lieu of the diploma or diplomas and preliminary requirements herein referred to where the applicant can show to the satisfaction of the board of medical examiners that he has taken courses [hereinafter required] in a school or schools approved by the board totaling for applicants for "drugless practitioner certificates" not less than sixty-four weeks consisting of not less than twenty-four hundred hours and for "physician and surgeon certificates" totaling not less than one hundred twenty-eight weeks consisting of not less than forty-eight hundred hours, it being required that all applicants shall have received passing grades in all such courses, that the applicant or applicants shall be admitted to examination for their respective form of certificates.

The said application shall be made upon a blank furnished by said board and it shall contain such information concerning the medical instruction and the preliminary education of the applicant as the board may by rule prescribe. In addition to the requirements hereinabove provided for, applicants for either form of certificate hereunder shall present to said board at the time of making such application a diploma from a California high school or other school in the State of California requiring and giving a full four years' course of

same grade, or other schools elsewhere, requiring and giving a full four years' standard high school course, or its equivalent, approved by the board, together with satisfactory proof that he is the lawful holder of such diploma and that the same was procured in the regular course of instruction. In lieu of such diploma, the applicant may present: (1) a certificate from the college entrance examination board, or the college examining board of any state or territory showing that such applicant has successfully passed the examination of said board; or (2) if such applicant be thirty years or more of age he may show to the satisfaction of the board of medical examiners proof of preliminary education equivalent in training power to the foregoing requirements. After January 1, 1919, every applicant for a "physician and surgeon certificate" shall in addition to the foregoing requirements, present to the board satisfactory evidence that before beginning the study of medicine he has completed a course which includes at least one year of work, of college grade, in each of the subjects of physics, chemistry and biology.

Sec. 10. Applicants for either form of certificate shall file satisfactory evidence of having pursued in any legally chartered school or schools, approved by the board, a course of instruction covering and including the following minimum requirements:

For a "Physician and Surgeon Certificate."

Group 1. 825 hours.

Anatomy	600 hours
Embryology	75 hours
Histology	150 hours

Group 2. 620 hours.

Elementary chemistry and toxicology	140 hours
Advanced chemistry.....	180 hours
Physiology	300 hours

Group 3. 700 hours.

Elementary bacteriology.....	60 hours
Advanced bacteriology.....	100 hours
Hygiene	90 hours
Pathology	450 hours

Group 4. 240 hours.

Materia medica.....	80 hours
Pharmacology	105 hours
Therapeutics	55 hours

Group 5. 1120 hours.

Dermatology and syphilis.....	45 hours
General medicine and general diagnosis	700 hours
Genito-urinary diseases.....	45 hours
Nervous and mental diseases....	180 hours
Pediatrics	150 hours

Group 6. 965 hours.

Laryngology, otology, rhinology	60 hours
Ophthalmology	60 hours
Surgery and surgical diagnosis..	500 hours
Orthopedic surgery.....	45 hours
Physical therapy, including electrotherapy, X-ray, radiography, hydrotherapy	300 hours

Group 7. 300 hours.

Gynecology	105 hours
Obstetrics	195 hours

Miscellaneous. 30 hours.

Ethics, jurisprudence, etc.....	30 hours
Total	4800 hours

For a "Drugless Practitioner Certificate."

Group 1. 645 hours.

Anatomy	510 hours
Histology	135 hours

Group 2. 420 hours.

Elementary chemistry and toxicology	120 hours
Physiology	300 hours

Group 3. 375 hours.

Elementary bacteriology	60 hours
Hygiene	45 hours
Pathology	270 hours

Group 4. 420 hours.

Diagnosis	420 hours
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Group 5. 260 hours.

Manipulative and mechanical therapy	260 hours
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Group 6. 300 hours.

Gynecology	105 hours
Obstetrics	195 hours
Total	2400 hours

In the course of study herein outlined the hours required shall be actual work in the class room, laboratory, clinic or hospital, and at least eighty (80) per cent. of actual attendance shall be required; provided, that the hours herein required in any one subject need not exceed seventy-five (75) per cent. of the number specified, but that the total number of hours in all the subjects of each group shall not be less than the total number specified for such group.

Sec. 11. In addition to above requirements, all applicants for "physician and surgeon certificates" must pass an examination to be given by the board in the following subjects:

1. Anatomy and histology.
2. Physiology.
3. Bacteriology and pathology.
4. Chemistry and toxicology.
5. Obstetrics and gynecology.
6. Materia medica and therapeutics, pharmacology, including prescription writing.
7. General medicine, including clinical microscopy.
8. Surgery.
9. Hygiene and sanitation.

All applicants for "drugless practitioner certificates" must pass an examination in the following subjects:

1. Anatomy and histology,
2. Physiology,
3. General diagnosis,
4. Pathology and elementary bacteriology,
5. Obstetrics and gynecology.
6. Toxicology and elementary chemistry.
7. Hygiene and sanitation;

provided, that a person who holds a "drugless practitioner certificate," and who presents evidence of having successfully completed the additional courses required for the "physician and surgeon certificate" as hereinbefore provided, shall be permitted to take his examination in subjects required for a "physician and surgeon certificate" without being re-examined in "drugless practitioner" subjects.

All examinations shall be practical in character and designed to ascertain the applicant's fitness to practice his profession, and shall be conducted in the English language, and at least a portion of the examination in each of the subjects shall be in writing. There shall be at least ten questions on each subject, the answers to which shall be marked on a scale of zero to one hundred. Each applicant must obtain no less than a general average of seventy-five per cent., and not less than sixty per cent. in any two subjects; provided, that any applicant shall be granted a credit of one per cent. upon the general average for each year of actual practice since graduation; provided, further, that any applicant for "physician and surgeon certificate" obtaining seventy-five (75) per cent. each in seven subjects, and any applicant for "drugless practitioner certificate" obtaining seventy-five per cent. each in five subjects shall be subsequently re-examined in those subjects only in which he failed, and without additional fee.

The examination papers shall form a part of the records of the board, and shall be kept on file by

the secretary for a period of one year after each examination. In said examination the applicant shall be known and designated by number only, and the name attached to the number shall be kept secret until after the board has finally voted upon the application. The secretary of the board shall in no instance participate as an examiner in any examination held by the board. All questions on any subject in which examination is required under this act shall be provided by the board of medical examiners upon the morning of the day upon which examination is given in such subject, and when it shall be shown that the secretary or any member of the board has in any manner given information in advance of or during examination to any applicant it shall be the duty of the governor to remove such person from the board of medical examiners, or from the office of secretary.

All certificates issued hereunder must state the extent and character of practice which is permitted thereunder and shall be in such form as shall be prescribed by the board.

Sec. 12. Any medical director, medical inspector, passed assistant surgeon, or assistant surgeon of the United States navy, honorably discharged, or temporarily detached, or placed upon the retired list without being discharged, from the medical department of the United States navy, or who by resignation has honorably severed all connection with the service, and any surgeon of the United States army, honorably discharged, or temporarily detached or placed upon the retired list without being discharged from the medical department of the United States army, or who by resignation has honorably severed all connection with the service, is hereby authorized to practice medicine and surgery within the State of California, by filing a sworn copy of his discharge, if he be discharged, or of the order temporarily detaching him or the order placing him upon the retired list, with the state board of medical examiners or by proving to the satisfaction of the board that by resignation he has honorably left the services of either the army or navy, and paying said board a fee of fifty dollars (\$50); provided, however, that this provision shall not apply to any contract surgeon in the United States army or navy, and shall not apply to any officer of medical reserve corps of either said army or navy.

Sec. 13. Said board must also issue a "physician and surgeon certificate" to any applicant, without any examination, authorizing the [holder] thereof to practice medicine and surgery in the State of California, upon payment of a registration fee of fifty dollars (\$50.00), upon the following terms and conditions and upon satisfactory proof thereof, viz: The applicant shall produce a certificate entitling him to practice medicine and surgery, as provided for in said "physician and surgeon certificate," issued either by the medical examining board, or by any other board or officer authorized by the law to issue a certificate entitling such applicant to practice medicine and surgery, either in the District of Columbia, or in any state or territory of the United States, or if such certificate shall have been lost, then a copy thereof, with proof satisfactory to the board of medical examiners of the State of California that the copy is a correct copy. Said certificate must not have been issued to such applicant prior to the first day of August, 1901, and the requirements from the medical college from which such applicant may have graduated, and the requirements of the board which was legally authorized to issue such certificate permitting such applicant to practice medicine and surgery shall not have been, at the time such certificate was issued, in any degree or particular less than those which were required for the issuance of a certificate to practice medicine and surgery in the State of California at the date of the issuance of such certificate, or which may hereafter be required by law and which may be in force at the time of the issuance of any such certificate; and provided, fur-

ther, that said applicant shall also furnish from the board which issued said certificate, evidence satisfactory to the board of medical examiners of the State of California, showing what the requirements were of the college, or board, issuing such certificate, at the date of such issuance. If, after an examination of such certificate, and the production on the part of the applicant of such further reasonable evidence of the said requirements as may be deemed necessary by the board of medical examiners of the State of California, and any other or further examinations or investigation which said board may see fit to make, or its own part, it shall be found that the requirements of the board issuing such certificate were, when said certificate was issued, in any degree or particular less than the requirements provided by the laws of the State of California, at the date of the issuance of such certificate, he will not be entitled to practice within the State of California without an examination. Any person may file an application with the said board to practice medicine and surgery within the State of California, in the event that such applicant has been duly licensed prior to August 1, 1901, and has practiced medicine and surgery in another state or territory, or the District of Columbia, for a period of time commencing prior to the first day of August, 1901. Such application shall be verified and shall contain a statement showing: (a) the full name of the applicant; (b) all institutions at which he has studied and the period of such study, and all institutions from which he has graduated; (c) a statement of whatever certificate or certificates to practice medicine and surgery may have been issued to him, together with the date of such certificate and a description of the same, and, if required by the board, the certificates themselves, or satisfactory proof of their issuance; (d) a statement of all places in which said applicant has practiced medicine and surgery; (e) such other general information as to his past practice, as may be required by the said board. The said board shall make such independent investigation of the character, ability and standing of the applicant as it may deem proper and necessary, and if it shall find after such investigation that said applicant has been a practicing physician and surgeon in any other state or territory or the District of Columbia, prior to August 1, 1901, and prior to said last named date has been duly licensed so to practice, and that his reputation as such physician and surgeon is good in the community in which he has so practiced medicine and surgery, they shall afford him an examination on a day suiting the convenience of the board not more than six (6) months subsequent to the presentation of said application. Said examination shall be oral, practical, and clinical in nature, and full consideration shall be given to the duration and character of the applicant's practice. If after such last mentioned examination it is determined by a majority vote of the said medical examiners conducting said examination, that such applicant is so qualified to practice medicine and surgery within the State of California, and that his reputation and standing in the community in which he has previously practiced is good, the said applicant shall be entitled to receive a "physician and surgeon certificate." Each applicant on making such application shall pay to the secretary of the board, a fee of fifty dollars (\$50), which shall be paid to the treasurer of the board, of which sum forty dollars (\$40) shall be returned to him should he not receive a certificate hereunder. All certificates issued pursuant to this section shall be marked across the face thereof "reciprocity certificate."

Sec. 14. Said board must refuse a certificate to any applicant guilty of unprofessional conduct. On the filing with the secretary of a sworn complaint, charging the applicant with having been guilty of unprofessional conduct, the secretary must forthwith issue a citation, under the seal of the board, and make the same returnable at the

next regular session of said board, occurring at least thirty days next after filing the complaint. Such citation shall notify the applicant when and where the charges of said unprofessional conduct will be heard, and that the applicant shall file his written answer, under oath, within twenty days after the service on him of said citation, or that default will be taken against him and his application for a certificate refused. The attendance of witnesses at such hearing may be compelled by subpoenas issued by the secretary of the board under its seal. Said citation and said subpoenas shall be served in accordance with the statutes of this state then in force as to the service of citations and subpoenas generally, and all the provisions of the statutes of this state then in force relating to subpoenas and to citations are hereby made applicable to the subpoenas and citations provided for herein. Upon the secretary's certifying to the fact of refusal of any person to obey a subpoena or citation to the superior court of the county in which the service was had, said court shall thereupon proceed to hear said matter in accordance with the statutes of this state then in force as to contempts for disobedience of process of the court, and should said court find that the subpoena or citation has been legally served, and that the party so served has wilfully disobeyed the same, it shall proceed to impose such penalty as provided in cases of contempt of court. In all cases of alleged unprofessional conduct arising under this act, depositions of witnesses may be taken, the same as in civil cases, and all the provisions of the statutes of this state then in force as to the taking of depositions are hereby made applicable to the taking of depositions under this act. If the applicant shall fail to file with the secretary of said board his answer, under oath, within twenty days after service on him of said citation, or within such further time as the board may allow, and the charges on their face shall be deemed sufficient by the board, default shall be entered against him, and his application refused. If the charges on their face be deemed sufficient by the board, and issue be joined thereon by answer, the board shall proceed to determine the matter, and to that end shall hear such proper evidence as may be adduced before it; and if it appear to the satisfaction of the board that the applicant is guilty as charged, no certificate shall be issued to him. No certificate shall be refused on the ground of unprofessional conduct unless the applicant has been guilty of such conduct within two years next preceding his application. Whenever any holder of a certificate herein provided for is guilty of unprofessional conduct, as the same is defined in this act, and the said unprofessional conduct has been brought to the attention of the board granting said certificate, in the manner hereinafter provided, or whenever a certificate has been procured by fraud or misrepresentation, or issued by mistake, or the person holding such certificate is found to be practicing contrary to the provisions thereof and of this act, it shall be the duty of said board either to suspend the right of the holder of said certificate to practice for a period not exceeding one year, or in its discretion to revoke his certificate. In the event of such suspension, the holder of such certificate shall not be entitled to practice thereunder during the term of suspension; but, upon the expiration of the term of said suspension, he shall be reinstated by the board and shall be entitled to resume his practice, unless it shall be established to the satisfaction of the board that said person so suspended from practice, has, during the term of such suspension, practiced in the State of California, in which event the board shall revoke the certificate of such person. No such suspension or revocation shall be made unless such holder is cited to appear and the same proceedings are had as is hereinbefore provided in this section in case of refusal to issue certificates. Said secretary in all cases of sus-

pension or revocation shall enter on his register the fact of such suspension or revocation, as the case may be, and shall certify the fact of such suspension or revocation under the seal of the board, to the county clerk of the counties in which the certificates of the person whose certificate has been revoked is recorded; and said clerk must thereupon write upon the margin or across the face of his register of the certificate of such person, the following: "The holder of this certificate was on the — day of — suspended for—," or, "This certificate was revoked on the — day of —," as the case may be, giving the day, month, and year of such revocation, or length of suspension, as the case may be, in accordance with said certification to him by said secretary. The record of such suspension or revocation so made by said county clerk shall be prima facie evidence of the fact thereof, and of the regularity of all the proceedings of said board in the matter of said suspension or revocation. The words "unprofessional conduct," as used in this act, are hereby declared to mean:

First—The procuring or aiding or abetting in procuring of a criminal abortion.

Second—The wilfully betraying of a professional secret.

Third—All advertising of medical business which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to public morals or safety.

Fourth—All advertising of any medicine or of any means whereby the monthly periods of women can be regulated or the menses re-established if suppressed.

Fifth—Conviction of any offense involving moral turpitude, in which case the record of such conviction shall be conclusive evidence.

Sixth—Habitual intemperance.

Seventh—The personation of another licensed practitioner.

Eighth—The use, by the holder of any certificate, in any sign or advertisement in connection with his said practice, or in any advertisement or announcement of his practice, of any fictitious name, or any name other than his own.

Ninth—The use, by the holder of a "drugless practitioner certificate," of drugs or what are known as medicinal preparations, in or upon any human being, or the severing or penetrating by the holder of said "drugless practitioner certificate" of the tissues of any human being in the treatment of any disease, injury, deformity, or other physical or mental condition of such human being, excepting the severing of the umbilical cord.

Tenth—Advertising, announcing or stating, directly, indirectly, or in substance, by any sign, card, newspaper advertisement, or other written or printed sign or advertisement, that the holder of such certificate or any other person, company, or association by which he is employed or in whose service he is, will cure or attempt to cure, or will treat, any venereal disease, or will cure or attempt to cure or treat any person or persons for any sexual disease, for lost manhood, sexual weakness, or sexual disorder; or being employed by, or being in the service of, any person, firm, association, or corporation so advertising, announcing, or stating.

Eleventh—The use by the holder of a "drugless practitioner certificate" of the letters "M.D.," or the words "doctor of medicine," or the term "physician and surgeon," or the term "physician," or the term "surgeon," in connection with his name or in connection with his practice, or otherwise, upon any sign, card, advertisement, or announcement, or otherwise.

Sec. 15. Every person holding a certificate under the laws of this state authorizing him to practice any system or mode of treating the sick or afflicted

in this state must have it recorded in the office of the county clerk of the county or counties in which the holder of said certificate is practicing his profession, and the fact of such recordation shall be endorsed on the certificate by the county clerk recording the same. Any person holding a certificate as aforesaid, who shall practice or attempt to practice any other system or mode of treating the sick or afflicted in this state, without having first filed his certificate with the county clerk, as herein provided, shall be deemed guilty of a misdemeanor and shall be punished by a fine of not less than twenty-five dollars (\$25.00) nor more than one hundred dollars (\$100.00), or by imprisonment for a period of not less than thirty days nor more than sixty days, or by both such fine and imprisonment.

Sec. 16. The county clerk shall keep a book provided for the purpose a complete list of the certificates recorded by him, with the date of the record; and said book shall be open to public inspection during his office hours.

Sec. 17. Any person who shall practice or attempt to practice, or who advertises or holds himself out as practicing, any system or mode of treating the sick or afflicted in this state, or who shall diagnose, treat, operate for, or prescribe for, any disease, injury, deformity, or other mental or physical condition of any person, without having at the time of so doing a valid unrevoked certificate as provided in this act, or who shall in any sign or in any advertisement use the word "doctor," the letters or prefix "Dr.," the letters "M.D.," or any other term or letters indicating or implying that he is a doctor under the terms of this or any other act, or that he is entitled to practice hereunder, or under any other law, [without having at the time of so doing a valid unrevoked certificate as provided in this act] shall be guilty of a misdemeanor and upon conviction thereof shall be punished by a fine of not less than one hundred dollars (\$100.00) nor more than six hundred dollars (\$600.00), or by imprisonment for a term of not less than sixty (60) days nor more than one hundred and eighty (180) days, or by both such fine and imprisonment. Upon each such conviction the fine shall be paid, when collected, to the state treasurer, and a report thereof shall be made to the state controller.

Sec. 18. Any person, or any member of any firm, or official of any company, association, organization or corporation shall be guilty of a misdemeanor and upon conviction thereof shall be punishable by imprisonment in the county jail for not less than ten (10) days nor more than one (1) year, or by a fine of not less than one hundred dollars (\$100.00) nor more than one thousand dollars (\$1,000.00), or by both such fine and imprisonment, who, individually or in his official capacity, shall himself sell or barter, or offer to sell or barter, any certificate authorized to be granted hereunder, or any diploma, affidavit, transcript, certificate or any other evidence required in this act for use in connection with the granting of certificates or diplomas, or who shall purchase or procure the same either directly or indirectly with intent that the same shall be fraudulently used, or who shall with fraudulent intent alter any diploma, certificate, transcript, affidavit, or any other evidence to be used in obtaining a diploma or certificate required hereunder, or who shall use or attempt to use fraudulently any certificate, transcript, affidavit, or diploma, whether the same be genuine or false, or who shall practice or attempt to practice any system of treatment of the sick or afflicted, under a false or assumed name, or any name other than that prescribed by the board of medical examiners of the State of California on its certificate issued to such person authorizing him to administer such treatment, or who shall assume any degree or title not conferred upon him in the manner and by the authority recognized in this act, with intent to represent falsely that he has re-

ceived such degree or title, or who shall wilfully make any false statement on any application for examination, license or registration under this act, or who shall engage in the treatment of the sick, or afflicted without causing to be displayed in a conspicuous manner and in a conspicuous place in his office the name of each and every person who is associated with or employed by him in the practice of medicine and surgery or other treatment of the sick or afflicted, or who shall, within ten days after demand made by the secretary of the board, fail to furnish to said board the name and address of all such persons associated with or employed by him or by any company or association with which he is or has been connected at any time within sixty (60) days prior to said notice, together with a sworn statement showing under and by what license or authority said person or persons, or said employee or employees, is or are, or has or have been, practicing medicine or surgery, or any other system of treatment of the sick or afflicted (provided that such affidavit shall not be used as evidence against said person or employee in any proceeding under this section.)

Sec. 19. Every person filing for record, or attempting to file for record, the certificate issued to another, falsely claiming himself to be the person named in or entitled to, such certificate, shall be guilty of a felony, and, upon conviction thereof, shall be subject to such penalties as are provided by the laws of this state for the crime of forgery.

Sec. 20. Any person not a member of the state board of medical examiners who shall sign, or issue, or cause to be signed or issued, any certificate authorized by this act, shall be guilty of a misdemeanor, and shall be punished by a fine or not less than one hundred dollars (\$100.00) nor more than six hundred (\$600.00), or by imprisonment for a term not less than sixty (60) nor more than one hundred and eighty (180) days, or by both such fine and imprisonment.

Sec. 21. Nothing in this act shall be construed to prohibit the practice by any person holding an unrevoked certificate heretofore issued under or validated by any medical practice act of this state, but all such certificates may be revoked for unprofessional conduct in the same manner and upon the same grounds as if they had been issued under this act.

Sec. 22. Nothing in this act shall be construed to prohibit service in the case of emergency, or the domestic administration of family remedies; nor shall this act apply to any commissioned medical officer in the United States army, navy or marine hospital, or public health service, in the discharge of his official duties; nor to any licensed dentist when engaged exclusively in the practice of dentistry. Nor shall this act apply to any practitioner from another state or territory, when in actual consultation with a licensed practitioner of this state, if such practitioner is, at the time of such consultation, a licensed practitioner in the state or territory in which he resides; provided, that such practitioner shall not open an office or appoint a place to meet patients or receive calls within the limits of this state. Nor shall this act be construed so as to discriminate against any particular school of medicine or surgery, or any other treatment, nor to regulate, prohibit or to apply to, any kind of treatment by prayer, nor to interfere in any way with the practice of religion.

Sec. 23. An act entitled "An act for the regulation of the practice of medicine and surgery, osteopathy, and other systems or modes of treating the sick or afflicted, in the State of California, and for the appointment of a board of medical examiners in the matter of said regulation," approved March 14, 1907, as amended by a certain act approved March 19, 1909, as amended by a certain act approved May 1, 1911, is hereby repealed, and also all other acts and parts of acts in conflict with this act are hereby repealed.

SOCIETY REPORTS

CALIFORNIA ACADEMY OF MEDICINE.

The regular meeting of the California Academy of Medicine was held on the evening of April 28th in the rooms of the San Francisco County Medical Society.

The following scientific program was given:

1. Demonstration of Cases Showing the Relationship Between Lues and Muscular Atrophies. M. B. Lennon. Discussed by W. F. Schaller, H. R. Oliver, S. T. Pope and M. B. Lennon.

2. Report on the Analysis of Cerebrospinal Fluid in 109 Cases of Disease of the Nervous System, with Clinical Notes. W. F. Schaller. Discussed by H. R. Oliver, L. S. Schmitt and W. F. Schaller.

Refreshments were served at the close of the meeting.

COOPER CLINICAL SOCIETY.

A meeting of the Cooper Clinical Society was held on the evening of May 5th, at the Medical Department of Stanford University. The following scientific program was given:

1. Demonstration of Pathological Specimens. Dr. H. B. Graham.

2. Spina Ventosa. Dr. S. L. Haas. Discussed by Drs. Stanley Stillman, S. T. Pope and H. H. Yerington.

3. Demonstration of Apparatus for Artificial Pneumothorax. Dr. L. S. Mace.

Refreshments were served at the close of the meeting.

(The next meeting of the Society will be held the first Monday in September.)

MONTEREY COUNTY.

There was a meeting of the Monterey County Medical Society at the Hotel Abbott on May 3rd. Dr. S. B. Gordon, president, presided. The physicians from out of town were: Dr. Brumwell of King City, Dr. Abbott and Dr. Lillie of Monterey, Dr. Graham of Pacific Grove, Dr. Crabtree, Dr. Edwards, Dr. Parker and others were present.

Dr. Gordon gave the society a short and very interesting account of his recent experiences in Mexico, where the lives and property of Americans are in great peril, more especially their property.

Dr. Graham, Dr. Crabtree and Dr. Edwards discussed interesting cases that they had treated since the last meeting.

ORANGE COUNTY.

The Orange County Medical Society held its annual meeting and banquet Tuesday evening at the Hotel Rochester in Orange. At the banquet, a splendid six-course affair which was a credit to the hotel management, covers were laid for twenty-five guests, including the physicians and their companions. Dr. Johnson of Anaheim acted as toastmaster.

The annual address of the association was delivered by the retiring president, Dr. Ida B. Parker of Orange. Dr. Parker's subject was "Occupation and Exercise," which she handled with an ability that held the interest of her audience throughout.

Rev. B. C. Cory, pastor of the First M. E. Church, responded to the toast, "Notes on the Medical Profession," with a few interesting remarks. He was followed by Dr. Friedman, also of Orange, who presented a strong talk on the subject, "Mothers." Dr. Ball of Santa Ana answered a toast with a short address on "Mere Man." "Women" was the topic chosen by Dr. Dryer of Santa Ana, who followed Dr. Ball.

The installation of officers for the ensuing year was the chief item of business to come before the meeting. The following newly-elected executives were placed in office: Dr. Johnson of Anaheim, president; Dr. Domann of Orange, vice-president;

Dr. Wehrly of Santa Ana, secretary; Dr. Gordon of Santa Ana, treasurer.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of April, the following meetings were held:

Section on Medicine, Tuesday, April 1st, 1913.

1. Diagnostic Errors in Communicable Diseases. A. A. O'Neill. Discussed by W. R. P. Clark, Harry E. Alderson and A. S. Keenan.

2. Demonstration of Patients. Roger Brooke.
a. Entamebic Dysentery.
b. Bronchiectasis (?).
c. Aneurysm of Varix.

Discussed by C. C. Levison, P. K. Brown, S. T. Pope and J. Rosenstirn.

3. Demonstration of Manometer for Use in the Operation for Pneumothorax. L. S. Mace. Discussed by G. H. Evans, P. K. Brown, Max Rothschild and W. C. Voorsanger.

General Meeting, Tuesday, April 8th, 1913.

1. The Cutaneous Reaction in Syphilis. (Demonstration of Luetin Reaction.) J. M. Wolisohn. Discussed by R. L. Wilbur, L. S. Schmitt, R. Brooke, H. C. Moffitt, H. B. A. Kugeler and H. E. Alderson.

2. Some Aspects of Thoracic Disease in Children. (Illustrated by Lantern Slides.) R. L. Ash and A. K. Davenport. Discussed by H. C. Moffitt.

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held March 28th at the residence of Dr. Charles R. Harry. The following members were present: Drs. H. Smythe, D. R. Powell, C. F. English, R. R. Hammond, L. R. Johnson, D. F. Ray, Mary C. Taylor, J. D. Dameron, R. B. Knight, H. E. Sanderson, W. J. Young, S. B. Swift, Margaret Smyth, Chas. R. Harry, L. Dozier and R. T. McGurk; also Drs. S. H. Buteau, A. Powell, C. A. Dukes and Smith of Oakland as guests.

Drs. R. T. McGurk, C. F. English and W. R. Langdon were named as alternates to the meeting of the State Society.

A paper on "Uterine Descensus" was presented by Dr. Buteau, assisted by Drs. Powell, Dukes and Smith. The doctors described in detail Dr. Buteau's operation for Uterine Descensus, illustrating it with lantern slides and comparing it with some of the other operations for the same condition. It was generally agreed by the members of the local society that the operation had some good points, and with proper pelvic support would be worth trying in selected cases.

There being no further business, the society adjourned to the dining room for refreshments.

* * *

The regular monthly meeting of the San Joaquin County Medical Society was held April 25th at the office of Dr. Minerva Goodman. The following members were present: Drs. C. W. Evans, E. V. Falk, J. L. Henemuth of Modesto, C. R. Harry, J. D. Dameron, H. E. Sanderson, Margaret Smyth, Mary C. Taylor, Minerva Goodman, W. W. Fitzgerald, D. R. Powell, B. J. Powell, D. F. Ray, W. Walker, R. T. McGurk and Dr. Gould of Ripon as guest.

Communications were read from Dr. Tucker of the Legislative Committee of the State Society requesting the local secretary to do all in his power to assist in bringing about legislation favorable to the continuation of the present high standard of medical efficiency. Considerable discussion followed the reading of these communications. Dr. Ray moved that a committee be appointed to advise the committee on Medical Legislation of the State Legislature of the necessity of maintaining a high standard of medical practice laws. The chair ap-

pointed Drs. Ray, Taylor and B. J. Powell to draft the necessary resolutions.

The Committee on Admissions reported favorably on the names of Drs. L. Dozier, W. Walker and D. R. Powell and they were declared members of the local society.

Dr. Powell and Dr. Dameron reported that the recent meeting of the State Medical Society was one of the largest and most interesting that they had ever attended, and a great amount of valuable information was obtained in the various clinics, headed by some of the most prominent men about the bay.

The routine business of the evening having been completed, Dr. Evans read his paper on "Placenta Previa." It was a short but extremely interesting paper in which the main idea was well presented—that of Cesarean section in all cases of Placenta Previa, and more especially those in which the diagnosis of the same has been made before actual labor. The discussion was opened by Dr. Dameron, who agreed that Dr. Evans' suggestion was an excellent one—that in all cases it would be the proper thing with the possible exception of those in which uncleanly manipulations had been made. Drs. Ray, Fitzgerald and Harry also discussed the paper at some length. The paper was greatly enjoyed by all present.

There being no further business, the meeting adjourned.

R. T. McGURK, Secretary.

BOOK REVIEWS

Sahli's Treatise on Diagnostic Methods of Examination. Translated by N. B. Potter. Published by W. B. Saunders Co., Philadelphia, 1911.

There are a few books that stand out as monuments to all that is best in German men of science: trustworthiness, indefatigable industry, and endeavor to get at the bottom of things, and a sense of personal responsibility for an utterance of opinion. Sahli's Diagnostic Methods is one of these. We wonder how one man can have covered so vast a field with such thoroughness. Every method described in the book bears traces of personal investigation, there is nothing merely compilatory. Sahli is a friend in need, to whom we shall rarely turn in vain. We owe translators and publishers a debt of gratitude for making him accessible to an English-speaking public. L. E.

Principles and Practice of Obstetrics, by Joseph B. de Lee, A. M., M. D., Professor of Obstetrics at the Northwestern University Medical School, pp. 1060, with 913 illustrations, 150 of them in colors. W. B. Saunders and Co., publishers, Philadelphia and London, 1913.

This compend on Obstetrics is most completely and beautifully illustrated, rivalling the best that has been published by American or foreign authors. The high plane of excellence in illustration is likewise sustained in the sensible and interesting way the author has written his book. For the conscientious undergraduate it must prove rather discouraging to realize that he should master the contents of such a book before assuming honestly the responsibilities of private obstetric practice. For the aspirant of obstetrical honors, however, this book will prove an excellent guide for the early years of his training. A. B. S.

A Text-Book of Obstetrics, the new (7th) edition, including Related Gynecologic Operations, by Barton Cooke Hirst, M. D., Professor of Obstetrics in the University Pennsylvania. Seventh revised edition. Octavo of 1013 pages, with 895 illustrations, 53 of them in color. Philadelphia and London, W. B. Saunders Company, 1912. Cloth, \$5.00, net; half morocco, \$6.50, net.

A very commendable book in essentially prac-

tical obstetrics. A noteworthy feature is that of including the gynecological diseases which belong to this subject. It is true that a single, portable volume is too small to attempt to present the complete subject, nevertheless, I think more space and detail should be given to some of the subjects which are more decidedly obstetrical. The book also has many good plates. Its practical nature will make it very useful to practitioners.

C. B. M.

Napoleon's Campaign in Russia, Anno 1812, by Dr. A. Rose, a medico-historical record. 12 mo., pp. 212. New York. Published by the author. Price \$1.50.

The reader of this narrative need not be a physician or have had military experience to appreciate the facts so graphically outlined by the author. The horrors of the "retreat from Moscow" have been portrayed in fiction, on canvas, by famous artists, and even by the cineograph, but never before have its scientific medical aspects been compiled and placed in such a form as to be useful and of interest to those, who, from a sanitary standpoint, desire to study the effect of extreme cold and hunger upon large bodies of men. Personal letters and reports are embodied in their proper places, which give an individual element to the narration, and you shudder to think of the fearful sufferings borne by the 600,000 men before they died on the plains of Russia. In the perusal of its pages one cannot fail to wonder if ever there will be a repetition of such suffering, and to ask if there is not with us a kinder humanity, that will make such events impossible. It shows therefore, the uselessness of war, the attendant horrors in fact, not fiction, and will doubtless be on the shelf of every advocate of universal peace.

G. H. R.

Diatbehandlungen Inneren Krankheiten, by H. Strauss. Published by Karger, Berlin, 1912.

That a third edition of Strauss' lectures should appear in a little over four years is good evidence of their popularity. Nor is it to be wondered at. Strauss is one of the greatest students in the field of dietetics and diseases of nutrition, and his writings not only on metabolism in diseases of the blood, his pioneer researches on sodium chloride metabolism, but his numerous other works are well known to all students of internal medicine. The topography is excellent, marginal notes facilitate its use as a ready reference book, the whole book is read with ease not only for these reasons, but for the pleasing style in which it is written. The division of subjects is very satisfactory. The author makes no pretense of giving a diet for measles, mumps, tonsillitis, empyema, gonorrhoea, liver abscess, etc., but does give practical information in the treatment of those diseases where diet really plays an important part. The book does not aim at completeness, it assumes some knowledge and a measure of common sense on the part of the reader. Those not so endowed may save themselves the trouble of reading it. There are appended a very complete series of food tables, as well as a series of receipts, each one accompanied by an analysis of the finished product.

R. B.

Surgical Clinics of John B. Murphy, Vol. II, No. 2, April, 1913. Published by W. B. Saunders Company, Philadelphia and London.

Essential Hemorrhage of the Uterus—Hysterectomy.

Pyloric Ulcer With Hypertrophy of Stomach Muscle.

Duodenal Block

Active Duodenal Ulcer Near Pylorus. Bleeding

About Seven Hours before Operation—A few German Statistics on the Button.

Gastric Ulcer, etc. A Talk by Mr. Robert Milne, F. R. C. S., London.

Further Remarks by Mr. Robert Milne, F. R. C. S., of London, England, following an Operation by Dr. Murphy for Fracture of the Humerus and Colles' Fracture.

Contraction of Intestinal Anastomotic Opening with Extensive Abdominal Adhesions; Cecal Fistula.

Exploratory Laparotomy; Pericholecystitis; Healed Duodenal Ulcer.

Duodenal Ulcer; Periduodenitis; Gastric Ulcer with Adhesions; Pericholecystitis; Gall-stones.

Exhibition of Case of Traumatic Brachial Paralysis.

Spina Bifida; Meningocele.

Impacted Fracture of the Body of the First Lumbar Vertebra; Laminectomy; Rapid Recovery Following Decompression of Cord.

Ureteral Calculus (Mulberry Type and Tunnelled).

Cerebellar Tumor (Marked Relief Following Decompression).

Osteomyelitis of Tibia (Transplantation of Bone).

Fracture of Tibia and Fibula (Lane Plate).

Periosteal Sarcoma: Amputation of the Leg.

Chronic Trochanteric Bursitis.

Later Note on Case of Cerebral Decompression. Recurrent Appendicitis—Retrocecal Appendix with Description of Dr. Murphy's Proctoclysis.

Nervous and Mental Diseases. For Students and Practitioners. By Charles S. Potts, M. D., Professor of Neurology in the Medico-Chirurgical College of Philadelphia. New (third) edition, enlarged and thoroughly revised. In one 12 mo. volume of 610 pages, with 141 engravings and 6 full-page plates. Price, cloth, \$2.75, net. Lea & Febiger, publishers, Philadelphia and New York, 1913.

This little book of 575 pages aims to give students and practitioners a comprehensive but brief description of nervous and mental diseases. The greater part of the book is upon nervous affections and gives a very good insight into our present knowledge of neurology. The author has succeeded in bringing out the chief features of the diseases concerned and the text is supplemented by numerous footnotes which refer the reader to accessible English publications. Favorable mention may be made of the clear discussion of aphasia, cerebral localization, including the localization of brain tumors, the differentiation between true syphilitic and parasyphilitic disease, the character of cerebellar ataxia, the differentiation between tic and spasm and the diagnostic importance of the examination of the cerebrospinal fluid, including the behavior of the Wassermann reaction in it in nervous disease of syphilitic origin. Treatment has been duly considered, especially the treatment of tabes, including Frenkel's reeducation exercises for ataxia, the deep injections of alcohol in facial neuralgia and a description of the Weir Mitchell treatment in neurasthenia. Although much more may be said of this work in praise than in criticism, attention should be called to certain features. In the description of the different kinds of sensibility no mention is made of the articular sensibility which is evidently included under the term muscular sensibility. It has been the service of Frenkel to show that in tabes the articular sensibility may be disturbed, whereas no disturbance of the muscular sensibility, properly speaking, may be detected. Some of the more important signs of perturbation of the pyramidal track have not been mentioned, such as the signs of Mendel-Bechterew, Rossilimo and the tibial phenomenon of Strumpel. In the discussion of the electrical reactions of degeneration the statement is made that the faradic excitability may be lost in partial

reaction of degeneration. This is not in accord with the prevalent opinion concerning the distinction between partial and complete reaction of degeneration (Erb, Remak and Zimmern). We have not come across any reference to the common forms of speech disturbance, such as mutism, deaf-mutism, stuttering and stammering. It would not have been amiss to have mentioned the important work of Barany on nystagmus, and his researches on the pointing errors after turning in cases of cerebellar disease. On page 446 the statement is made that in neurasthenia the tendinous reflexes may be present at one time and absent at another. This view is opposite to that generally held, and were this admitted we could no longer rely on the state of these reflexes in differentiating functional and organic disease. The well-known illustration on page 365 should be credited to Dejerine and not to Starr. In the somewhat extensive discussion of hysteria the theories of Janet and Babinski are not mentioned. If the views of these investigators have not met with general acceptance their influence has been great in directing a practical therapy, and for this reason should receive consideration.

The second part of the book devoted to mental disease is rather too brief to do justice to the subject. The excellent references which accompany the first part of the work are found less frequently here. For the student to adequately grasp the significance of many of the symptoms of mental disease it is necessary to have a certain instruction in normal psychology and this is wanting. The Binet-Simon tests for mental deficiency in children, which have been received with so much favor in this country, might very well have been briefly considered.

The book is in attractive form, is well printed, and the illustrations are happily chosen. In general it may be said to very well fulfill the intention of its author—to serve as a convenient guide for the student and practitioner. W. F. S.

NEWS NOTES FROM NEWSPAPERS.

Yreka is to have a new hospital.

At Willows the scarlet fever epidemic is over and the schools have been opened.

Chiropractics were denied a special examining board by a vote of 14 to 38 in the assembly.

San Pedro is to have an emergency hospital at the city hall building in the harbor district.

Jackson, Amador County, has recently acquired a sanitarium under the management of Mrs. Allen.

Taft has a new hospital known as the General Hospital of Taft; it will accommodate 25 patients.

Turlock is to have a new hospital to cost about \$25,000; it is to be called the Swedish American Hospital.

Monterey County Hospital is well spoken of in the last report of the State Board of Charities and Corrections.

At Bakersfield the new Mercy Hospital is about finished and will probably be opened to the public by July 1st.

Spinal meningitis has been noted during the last few months in the Sacramento Valley, Bakersfield and Auburn.

The Nurses' registration and licensing bill passed the legislature, though how badly amended it was we do not know.

The Hanford Sanitarium was formally opened to the public in the latter part of April; it will accommodate 31 patients.

Menlo's Red Cross Hospital, a gift from Mrs. Reid, will be dedicated this summer some time; it has cost over \$100,000.

Hospital licensing and regulation under the su-

pervision of the State Board of Health are provided for in a bill that passed the legislature.

Southern California is to have a new state hospital for the insane and \$250,000 was appropriated for that purpose by the last legislature.

The Southern California Medical Society held its meeting at Arrowhead Springs May 7th and 8th and quite a large attendance is reported.

San Francisco's City and County Hospital is expected to be ready for occupancy by November 1st; it has been an awfully long time coming.

Nevada County has just finished an investigation of its county hospital that left a clean record, so far as the published accounts of it indicate.

San Mateo's newly organized health board has started out to "wage a war on unmuzzled dogs, after which they will start a fly campaign."

"Turtle serum" seems to be not so popular as it was, but a good many physicians in California either got fooled on it or deliberately deceived their patients.

A National Department of Public Health was the subject of a conference between President Wilson and a committee of the A. M. A., recently held in Washington.

Inebriates and drug habit victims will no longer be consigned to the state insane asylums if a bill passed by the legislature is eventually signed and becomes a law.

A new organization has been formed for the Study and Prevention of Cancer, to follow very much the same educational lines as the anti-tuberculosis societies.

Pasadena schools, after careful examination of the school children, disclose one child in four who needs medical attention. This is somewhat less than the average.

Two distinguished members of the Society have died recently and their obituary notices will be published in due course of time; Dr. W. S. Thorne and Dr. Geo. H. Powers.

The male "clean bill of health" before marriage bill was passed by the legislature. Why the provision was not made to apply also to women, is just one of the legislative mysteries.

Friedmann managed to secure free advertising to the extent of hundreds of thousands of dollars in value, and now the newspapers, beginning to realize that they have been "worked," are pretty sore about it.

The Glenn County Society has reduced the fees to be charged for office visits from \$2.50 to \$2.00 and for night calls from \$5.00 to \$3.50; they also decided, very wisely, to cut out all lodge and similar contract work.

Mariposa County. "Sealed bids will be received for the appointment of a county physician for the period of one year, from July 1, 1913, to July 1, 1914, said bids to be filed," etc. That is a new one in the bidding game.

Alameda County is trying a new scheme in health boards. At the election held in April, the charter was amended so as to provide for a health board composed of one physician, one member of the council and three other laymen. It will be interesting to see how it works out.

The Alienists and Neurologists of the U. S. are to have a meeting in Chicago June 24-27, 1913, the week after the meeting of the A. M. A. at Minneapolis. Dr. W. T. Mefford, 2150 W. Madison street, Chicago, Ill., is the secretary.

The Tulare County Medical Society held a very successful meeting at Visalia on May 13th, members being present from Tulare, Porterville, Lindsay, Exeter, Visalia and Dinuba. After the meeting there was an excellent dinner served.

The University of California, according to recent press items, has received approximately a million and a half dollars for its Medical Department; nearly half a million is for the development of the hospital and the balance for a research fund.

WILL STAND WATCHING.

The following item appeared in the Los Angeles Times of May 9, 1913. As the "school" is one that is not recognized and has no standing, the "graduates" will stand some watching:

"The Pacific Medical College and Post-Graduate School last night awarded diplomas to the class of 1913 at the Sierra Madre Club, as follows: Elizabeth Brewster, S. O. Coolidge, M. Louise Davis, J. Orlin Glenn, L. D. Glass, Parker H. Goodwin, Mae B. Jason, Clifford S. Klein, Alfred W. Lumm, W. E. Lyons, Amy L. Lyons, John T. Rees, Claude D. Rust, Thomas S. Roach, William H. Thomas, Lela Mae Thomas, John C. Taylor and Claude West."

SOME INTERESTING FIGURES.

The report of the Municipal Clinic of San Francisco for the month ending March 31st presents some interesting figures. Careful and complete records of all prostitutes examined have been kept, the laboratory work being in charge of Dr. Phil. Rahtjen. While such examinations have been carried on at times in American cities, the methods employed have not been sufficiently thorough to warrant the deduction of any general conclusions. That the Municipal Clinic is surely reducing venereal disease can be shown by a comparison of the old and new registrations in the following table, the old registrations having been under examination for various lengths of time:

COMPARATIVE LABORATORY REPORT OF INFECTED CASES FROM START OF LABORATORY REPORTS.

Year	Month	Old Registrations			New Registrations		
		No. Reporting	No. Found Diseased	Per cent.	No. Registered	No. Found Diseased	Per cent.
1912	Mar.	727	31	4.2	62	7	11.2
"	Apr.	797	32	4.0	68	16	23.3
"	May	710	41	5.7	80	13	18.7
"	June	601	23	3.8	49	6	12.2
"	July	691	30	4.3	49	10	20.4
"	Aug.	610	30	4.9	40	8	20.0
"	Sept.	660	5	0.7	50	7	14.0
"	Oct.	626	23	3.6	84	14	16.6
"	Nov.	789	No Laboratory Report.				
"	Dec.	669	26	3.8	68	13	19.6
1913	Jan.	685	30	4.3	70	16	22.3
"	Feb.	665	31	4.8	31	12	38.7
"	Mar.	678	34	5.0	29	4	13.8

ARMY MEDICAL CORPS EXAMINATIONS.

The Surgeon-General of the Army announces that preliminary examinations for appointment of First Lieutenants in the Army Medical Corps will be held on July 14, 1913, at points to be hereafter designated.

Full information concerning these examinations can be procured upon application to the "Surgeon-General, U. S. Army, Washington, D. C." The essential requirements to secure an invitation are that the applicant shall be a citizen of the United States, a graduate of a medical school legally authorized to confer the degree of Doctor of Medicine, shall be of good moral character and habits, and shall have had at least one year's hospital training as an interne, after graduation. The examinations will be held simultaneously throughout the country at points where boards can be convened. Due consideration will be given to localities from which applications are received, in order to lessen the traveling expenses of applicants as much as possible.

In order to perfect all necessary arrangements for the examination, applications must be completed and in possession of the Adjutant-General

at least three weeks before the date of examination. Early attention is therefore enjoined upon all intending applicants. There are at present forty vacancies in the Medical Corps of the Army.

HEALTH DIRECTOR WANTED.

The Civil Service Board of Oakland is about to hold an examination for Health Director on June 30, 1913. Applications for this examination will be received from April 10, 1913, to May 10, 1913, inclusive. The local residence qualification of one year's residence in Oakland has been waived, and special arrangements will be made for non-resident applicants. Herewith is a schedule of the subjects and weights for this examination:

EDUCATION 30

Candidates must be graduates in Medicine.

- College 4
 - General education.
 - Biological education.
- Medical 18
 - General medical training.
 - Training in Public Health.
- Hospital 8
 - General training.
 - Training in communicable diseases.

EXPERIENCE 30

- Experience in executive work 10
- Practical experience in public health work 20

EXAMINATION 30

- Written Examination 10
- Thesis 20

(Original discussion of one of several Oakland health problems to be specified. Paper should not exceed 3000 words.)

PERSONAL QUALIFICATIONS 10

- Personality, special experience.

TOTAL 100

The City of Oakland has created the position, under Civil Service rules, known as Health Director. The nominal head of the department is the Health Officer, who holds a purely honorary position, while the Health Director is intended to be the executive and administrative head of the department, giving all his time to the city and receiving a salary of \$3000 to \$3600 a year.

We are anxious to receive applications for this examination, and ask that you do all you can to aid us in this regard.

Thanking you in advance for your kindness, I remain, yours very truly,

FRANK COLBURN,
Asst. Secretary.

MEMBERS AND GUESTS REGISTERED AT THE FORTY-THIRD ANNUAL MEETING OF THE MEDICAL SOCIETY, STATE OF CALIFORNIA, OAKLAND, APRIL, 1913.

Abbott, U. S.; Abrahm, Henry; Adams, Jno. E.; Adams, L. P.; Aiken, Geo. H.; Aikin, I. R.; Alexander, A. A.; Alexander, E. W.; Alderson, H. E.; Allen, M. De L.; Anderson, P. J.; Arnold, C. S.; Arnold, J. D.; Armstrong, J. M.; Atkins, M. H.

Bailhache, A. L. (guest and exhibitor); Bakèr, W. C.; Ball, C. D.; Bancroft, Eleanor; Barbat, J. H.; Barlow, W. J.; Barney, H. N.; Barry, Ernest; Beattie, Jno. I.; Beckman, O. H.; Bell, H. D.; Bennett, Chas. L.; Benton, J. J.; Bergener, G. J.; Bering, R. E.; Bertola, Mariana; Bine, René; Bishop, T. W.; Boone, W. R.; Bowles, F. H.;

Bradbury, R. M.; Bradfield, G. M.; Brainerd, H. G.; Bramhall, R. N.; Brazelton-Holmes, Clara M.; Brem, W. V.; Brinckerhoff, E. E.; Brinckerhoff, G. E.; Bixby, E. M.; Blake, C. R.; Blake, Wm. F.; Boardman, W. W.; Bonar, R. M.; Brown, Adelaide; Brown, Rexwald; Brown, P. K.; Browning, C. C.; Browning, F. W.; Bull, C. G.; Bullock, N. H.; Bunnell, S.; Bush, Alice; Buteau, S. H.

Caldwell, E. K.; Callnon, Jno. W.; Cameron, H. M. D.; Campbell, F. McLean; Card, E. F.; Carolan, H.; Carpenter, F. B.; Carpenter, F. L.; Cerf, A. E.; Chamberlain, W. H.; Chambers, W. E.; Channell, W. B.; Channell, W. L.; Cheney, Wm. Fitch; Chidester, W. C.; Chipman, E. D.; Christiansen, H. B.; Clark, E. M.; Clark, J. E.; Clark, M. L.; Clark, V. G.; Clark, W. A.; Clarke, Autin; Claypole, Edith J.; Cline, H. X. (guest); Cline, Jno. W.; Clow, G. B. N.; Cluness, W. R.; Cochran, Guy; Cole, Geo. L.; Colliver, Jno. A.; Colwill, N. P. (Chicago guest); Condit, J. C.; Conlin, B. M. J.; Cook, C. W.; Cooper, C. M.; Cosgrave, M. A.; Cottrell, E. L.; Cox, H. M.; Crane, C. C., and wife; Crabtree, Hezediah; Crawford, A. K.; Crispin, E. L. (guest); Crosby, Daniel; Crothers, W. H.; Crowley, D. D.; Culver, Geo. D.; Cunningham, W. E.

Davies, B. C.; Davis, Brett; Davis, Geo. W.; Davison, J. T., and wife (Seattle guest); Dawson, Wm. J. G.; Deane, L. C.; Dempsey, R. B.; De Puy, C. A.; de Obarrio, P.; Dickson, E. C.; Dietz, H. L.; Dennis, Mary E.; Dolan, P. E.; Downing, E.; Dryer, Jno. L.; Dudley, H. W.; Dukes, C. A.; Dupuich, L. R.; Dwight, W.

Eaves, Jas.; Ebright, Geo. E.; Edmonds, Frank; Edwards, T. C.; Ellinwood, C. N.; Ellis, H. Bert; Eloesser, Leo; Emerson, Mark L.; Engle, Theo. (Iowa guest); Enos, M. M.; Evans, Geo. H.; Ewer, Geo. N.

Fearn, J. Radford; Fine, H. M.; Fisher, Jas. T.; Fitzgibbon, C. C.; Fleming, E. W.; Flynn, Anna M.; Force, J. N.; Forrest, R. A.; Foster, N. K.; Franklin, J. H.; Fredericks, M. W.; Friedman, W. L.; Fry, P. B.; Fulton, Dudley; Fisher, A. L.; Fraser, W. W.

Galbraith, A.; Gallivan, Thos.; Gardner, J. T.; Gedney, F. M.; Genung, Mabel A.; Geraldson, Lena A.; Gibbons, H. W.; Gillihan, A. F.; Goldman, S. A.; Graham, H. B.; Green, A. S.; Green, Jacob S.; Gregory, A. M.; Gregory, L. C.; Grissim, J. D.; Grosse, A. B.; Gundrum, F. F.; Gallison, F. E.

Hadden, David; Hall, A. P.; Hamilton, J. O.; Hamilton, J. K.; Hamlin, F. A.; Hamlin, O. D.; Hanlon, Edw. W.; Hare, Chas. B.; Hare, Geo. A.; Harris, Eva L.; Hart, H. H.; Hastings, Hill; Hawke, Wm. A. (guest); Herrick, L. F.; Herrington, H.; Hervey, C. H.; Herzog, G. K.; Hieronymus, A.; Hirschler, D. Lee; Hogan, J. J.; Hoisholt, A. W.; Horn, Henry; Houston, E. C.; Howard, Burt F.; Howe, L. P.; Huffaker, A. (Nevada guest); Hulen, Vard H.; Huntington, T. W.; Huntington, W. D.; Hyde, C. E.; Hyde, O. C.; Hyman, Sol; Hunt, R. H.; Hooker, Marion O.; Hart, L.; Henderson, A. M.; Harker court, A.; Howard, J. L. Irwin, W. H.

Jackson, C. M. (Stockton guest); Jackson, F. F.; James, J. W.; Johnson, Wm. J.; Jones, Philip Mills; Jones, W. H.; Jordan, F. R.

Keating, J. J.; Kerr, W. J.; Kelly, A. S.; Kelly, E. E.; Kelsey, A. L.; Kelsey, J. E.; Kenyon, C. G.; Kergan, I. F.; Keys, E. M.; King, Jno. C.; Kingwell, J. J.; Koford, H.; Kress, Geo. H.; Krotoszyner, M.; Kuder, W. S.; Kugeler, H. B. A.; Kuser, I. H.; Kilgore, E. S.; Kleeman, G. C.; Kroll, F. W.; Kyle, John J.

Lackey, H. J.; Lafontaine, E. C.; Larkey, A. S.; Ledyard, C. C.; Lehr, Stella; Leonard, Ethel; Levegood, H. W.; Lewis, C. E.; Lewis, W. M.; Liliencrantz, A.; Lohse, Jno. L.; Long, H. E.; Long, S. F.; Lucas, W. T.; Luchetti, V.; Lund,

Etta; Lundegaard, E. M.; Lux, Fred W.; Lyon, S. B.

Magee, Thos. L.; Maher, J.; Maine, A. F.; Majors, E. A.; Makinson, H. A.; Malone, Wm. M.; Malsbary, Geo. E.; Manson, P.; Martin, H. R.; Marxmiller, H. G.; Masten, B. B.; Mattison, F. C. E.; Maxson, H. S.; Meads, A. M.; Medros, J. J.; Mehrmann, H. B.; Melvin, J. T.; Merrick, Jno. N.; Meyer, Henry; Michaels, L.; Miller, Austin; Miller, Chas. H.; Miller, Robt. W.; Miller, W. P.; Milliken, Wm. P.; Millsbaugh, W. P.; Milton, J. L.; Miner, M. L.; Miner, W. D.; Mitchell, C. O.; Mitchell, Elsie R.; Moffitt, H. C.; Molony, M.; Montgomery, Jno.; Moore, E. C.; Moore, H. S.; Morris, R. H.; Morrison, N. D.; Morrow, Howard; Morse, T. W.; Morton, A. W.; Moseley, G. G.; Mudd, J. L.; Mugler, F. R.; Musser, F. R.; McConnell, B.; McClenahan, H. C.; McClurg, Katherine; McNutt, W. F.; McAdory, R. J.; McLeod, Jas. H.; McKibbin, F. W.; McVey, C. L.; McArthur, W. T.; McCarthy, T. M. (Chronicle guest); McCleave, T. C.; McClelland, J. L.; McConnell, A. B.; McCoy, Geo. W.; MacCracken, W. B.; McGovern, C. J.; McIntosh, A. M.; McNaught, H. Y.; McDoherty, S. McL.; McKenzie, Geo.; Mangan, P. J. (Nevada guest); Mays, Arthur H.; Monroe, C. A.; Mace, Lewis Sayre; Montgomery, D. W.

Nagel, C. S. G.; Neff, F. F.; Nelson, J. E.; Newcomb, A. T.; Newton, F. C.; Nielsen, J. C. E.; Nielsen, Soren; Nittler, A. N.; Nelson, C. R.; Newell, Edw.; Newton, Jno. C.; Newton, Frances L.; Nusbaumer, Pauline.

O'Brien, J. T.; O'Connor, J. H.; O'Donnell, P. S.; Oldham, Jno. Y.; Oliver, H. R.; Olmsted, T.; Orllison, T. J.; Osborne, A. E.; Overend, E. J.; Owen, H. W.

Parsegan, J. H.; Paterson, F. H.; Page, C. W.; Pahl, P. C. H.; Parker, Chas. H. (guest); Parrish, H. L.; Paroni, Romilda; Parkinson, Jas. H.; Peck, Ino. W.; Peers, Robt. A.; Pettis, Zilda Turner; Petrie, F. B.; Phillips, P. T.; Piercy, A. T.; Pischel, Kaspar; Pollock, Robt.; Pomeroy, Geo. T.; Pond, C. P.; Pond, H. M.; Pond, J. H.; Pope, Saxton; Porter, Langley; Porter, Wm. S.; Pottenger, F. M.; Powell, Alvin; Powell, B. J.; Power, H. D'Arcy; Powers, A. R.; Pratt, G. H.; Prince, L. D.; Pruett, Wm. C.; Purnell, W. W.; Purves, Jno.

Regan, C.; Reinhardt, G. F.; Reinle, Geo. G.; Reud, W. R.; Reynolds, G. P.; Richards, C. M.; Richardson, W. W.; Riggin, L. L.; Rigdon, R. L.; Rixford, E.; Robertson, Jno. W.; Robertson, R. L.; Roberts, W. H.; Rood, D. C. (Illinois guest); Rosenthal, Chas. H.; Rosenstirn, J.; Rothganger, Geo.; Rothschild, Max; Rowell, H. N.; Rulison, E. L.; Russ, R.

Sampson, May H.; Sanderson, A. J.; Sandow, B. F. (guest); Sartori, H. J.; Sawyer, E. H.; Sawyer, W. A.; Schmoll, E.; Schmitt, L. S.; Scholl, A. J.; Schutz, M. H.; Schneider, Edwin H.; Scott, Florence; Schwartz, I.; Selfridge, G.; Shannon, Jas.; Shade, M. A.; Shields, Lillian; Shipman, Chas. G.; Shuev, Sarah I.; Sill, E. R.; Simon, E. G.; Simpson, Frank; Simpson, J. A.; Simpson, Wm.; Slavich, Jno. F.; Smith, A. C.; Smith, A. M.; Smith, Dudley; Smith, K. B.; Smith, W. O.; Snook, Jno.; Soiland, Albert; Simmons, G. C.; Simpson, F. W.; Somers, Howard; Spalding, A. B.; Spencer, Jno. C.; Stabel, F.; Stansbury, O.; Stephens, J. M.; Stevens, B. S.; Stevens, Wm. S.; Stephens, W. B.; Stice, T. H.; Stites, Ida M.; Stone, B.; Stover, W. M.; Stratton, Robt. T.; Strietmann, Wm. H.; Sutherland, Hester M.; Sutherland, R. T.; Sylvester, F. M.; Swauger, Luella S.; Sweet, Anna C.; Sweet, Robt. B.

Tait, F. Dudley; Teass, C. J.; Terry, W. I.; Thomas, H. G.; Thomas, J. B.; Thomason, Geo.; Todd, J. H.; Topping, Frank; Tower, A. M.; Tucker, Geo. E.; Tupper, R. B.

Van Orden, Kate P.; Van Dalsem, S. B.; Van Zwalenburg, C.; Vecki, Victor, and wife; Vicker-

son, J. I.; von Adelung, Edw.; von Werthern, J.; Voorsanger, Wm. C.; Vorwinkel, F. W.

Wagner, E. R.; Wagner, H. L.; Wakefield, W. F. B.; Walker, B. F.; Walker, J. R.; Wallace, W. S.; Walton, G. E.; Wanzer, Lucy M. F.; Ward, Edwin D.; Waterman, Helen J.; Watkins, Jas. T.; Weaver, Don D.; Weber, Phil H.; Wells, Geo. S.; Welty, C. F.; Westerfeld, Otto; White, C. M.; Whiteside, G. S. (Portland guest); Wilbur, R. L.; Williams, Clara L.; Willcutt, G. H.; Wills, C. A.; Willits, Emma K.; Wilder, C. H.; Wilson, Carl G.; Winslow, Thos. H.; Winterburg, W. H.; Wintermute, G. P.; Witherbee, O. O.; Wood, Geo. A.; Wood, Jas. B.; Wood, W. A.; Woolsey, F. R.; Wolf, I. J. (guest and exhibit); Worley, H. F.; Wright, T. B.; Wythe, Stephen.

Zieg, John (guest, Parke-Davis representative).

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC.,

of The California State Journal of Medicine, published monthly at San Francisco, California, required by the Act of August 24, 1912.

Note.—This statement is to be made in duplicate, both copies to be delivered by the publisher to the postmaster, who will send one copy to the Third Assistant Postmaster General (Division of Classification), Washington, D. C., and retain the other in the files of the post office.

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Editor, Philip Mills Jones,	Butler Building, San Francisco, Calif.

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Business Manager, Philip Mills Jones, same.

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Medical Society of the State of California; no stockholders.

Known bondholders, mortgagees, and other security holders, holding 1 per cent. or more of total amount of bonds, mortgages, or other securities: None.

Average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date of this statement.

(This information is required from daily newspapers only.)

PHILIP MILLS JONES.

(Signature of editor, publisher, business manager, or owner.)

Sworn to and subscribed before me this 20th day of March, 1913.

(Seal)

J. D. BROWN,

Notary Public in and for the City and County of San Francisco, State of California.

(My commission expires April 5, 1914.)

Form 3526.

INFANT MORTALITY.

An English-speaking Conference on the Prevention of Infant Mortality will be held in Caxton Hall, Westminster, London, on Monday morning, Monday afternoon and Tuesday morning, August 4th and 5th. The meetings will be held under the auspices of the (British) National Association for the Prevention of Infant Mortality and the Welfare of Infancy under the Patronage of the King and Queen, and will convene immediately preceding the opening of the International Medical Congress.

A tentative program has been issued by the committee which indicates that the papers will consist largely of medical opinion. The subjects treated will be:

The responsibility of central and local authorities in infant and child hygiene.

The administrative control of the milk supply.

The necessity for special education in infant hygiene.

Medical problems in infant nutrition.

Ante-natal hygiene.

The president of the conference will be the Hon. John Burns, M. P., president for the Local Government Board. The chairman of the English Executive Committee is Sir Thomas Barlow, and the secretary, Miss J. Halford, 4 Tavistock Square, London, W. C.

The American committee, in charge of the part to be taken by the United States and Canada, will furnish information to those desiring to attend the conference.

Dr. Henry L. Coit, chairman, 277 Mt. Prospect avenue, Newark, N. J.

Dr. Philip Van Ingen, secretary, 125 East 71st street, New York City.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Polyvalent Acne Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Antimeningitis Serum.—A polyvalent serum prepared from the blood of horses immunized to the meningococcus of Weichselbaum. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent B. Coli-Communis Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Refined and Concentrated Diphtheria Antitoxin (Antidiphtheric Globulin).—Put up in a syringe container. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Gonococcus Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Meningococcus Vaccine.—Marketed in packages of three ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Pneumococcus Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Pyocyanus Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Staphylococcus Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Staphylo-Acne Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Streptococcus Vaccine.—Marketed in packages of six ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Polyvalent Typhoid Vaccine.—Marketed in packages of three ampoules. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Antirabic Vaccine.—The Antirabic Vaccine, formerly manufactured by the American Biologic Company, Kansas City, Mo. (See New and Nonofficial Remedies, 1913), is now manufactured by

the Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 5, 1913, p. 1074).

Antigonococcic Serum.—A highly immune polyvalent serum, prepared by immunizing horses against many strains of gonococci. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 19, 1913, p. 1227).

Antistreptococcus Serum.—A polyvalent serum obtained by immunizing horses with increasing doses of streptococci extract and subsequently with live cultures. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 19, 1913, p. 1227).

Normal Horse Serum.—The serum of normal horse blood obtained in a sterile manner and passed through a Berkefeld filter. Sophian-Hall-Alexander Biologic Laboratories, Kansas City, Mo. (Jour. A. M. A., April 19, 1913, p. 1227).

BOARD OF MEDICAL EXAMINERS, CALIFORNIA, APRIL, 1913, SESSION.

Passed.

Coll. of Phys. & Surgs., S. F., Calif.; 5, —, 1909, 87.1.
Cooper Med. Coll., Calif.; (5, —, 1912), 89.9, 81.6*, 75.
Hahnemann Med. Coll. of the Pac., Calif.; 4, 26, 1912, 75.6*.
Univ. of Calif., Med. Dept., Calif.; (12, 20, 1902), 88.6 plus 5, 93.6; (5, —, 1907), 84; (5, 14, 1907), 80.2*.
Am. Med. Miss. Coll., Ill.; 6, —, 1905. Jefferson Med. Coll., Pa.; 6, —, 1907, 95.1.
Baltimore Univ. Sch. of Med., Md.; —, —, 1899, 75.5 plus 5, 80.5**.
Bellevue Hosp. Med. Coll., N. Y.; 3, 22, 1897, 85.9 plus 5, 90.9.
Bennett Eclectic Coll. Med. & Surg., Ill.; 5, 8, 1900, 80.1 plus 5, 85.1*.
Central Med. Coll., Mo.; 3, 1, 1898, 77.5 plus 5, 82.5*.
Central Univ., Med. Dept. (Hosp. Coll. of Med.), Ky.; 6, 27, 1901, 80.8 plus 5, 85.8.
Chicago Coll. of Med. & Surg., Ill.; 5, 20, 1912, 84.
Cleveland Homeo. Med. Coll., Ohio; 5, 4, 1904, 78.9.
Coll. Phys. & Surgs., Ill.; (4, 21, 1896), 77.8 plus 5, 82.8*; (6, 5, 1906), 77.5*.
Columbia Univ., N. Y. City; 6, —, 1910, 90.5.
Cornell Univ., Med. Coll., N. Y.; (6, 14, 1911), 83.5; (6, 12, 1907), 81.1.
Creighton Univ. Coll. of Med., Nebr.; 5, —, 1911, 77.
Denver & Gross Coll. of Med., Colo.; 5, 26, 1910, 88.5.
Denver Med. Sch. (Denver Univ.), Colo.; 4, 3, 1888, 75.6 plus 10, 85.6.
Detroit Coll. of Med., Mich.; 5, 4, 1893, 84.8 plus 10, 94.8.
Gross Med. Coll., Colo.; 4, 6, 1893, 81.1 plus 10, 91.1.
Hahnemann Med. Coll. & Hosp., Ill.; 4, 17, 1902, 76.2 plus 5, 81.2.
Jefferson Med. Coll., Pa., (6, 8, 1908), 89.6; (4, 4, 1888), 76.7 plus 10, 86.7.
Johns Hopkins Univ., Md.; (6, 8, 1909), 93.7; (6, 14, 1910), 93.3.
Lincoln Med. Coll., Med. Dept. Cotner Univ., Nebr.; 8, 1, 1906, 77.2**.
Long Island Coll. Hosp., N. Y.; 6, 1, 1911, 82.3.
Northwestern Univ. Med. Sch., Ill.; (6, 15, 1905), 88.3, (6, 17, 1897), 83.1 plus 5, 88.1; (6, 14, 1911), 86.8; (6, 4, 1898), 85.7; (6, 11, 1894), 79.7 plus 5, 84.7.
Northwestern Univ. Med. Sch., Ill.; (6, 14, 1911), 84.4; (6, 15, 1899), 76.4 plus 5, 81.4; (6, 14, 1911), 79.
Rush Med. Coll., Ill.; (3, 28, 1893), 81.8 plus 10, 91.8; (10, 2, 1902), 86 plus 5, 91; (6, 14, 1911), 88.1; (8, 28, 1912), 86.9; (5, 25, 1899), 81.9 plus 5, 86.9*.
State Univ. of Colo., Sch. of Med., Colo.; 6, —, 1910, 83.8.
State Univ. of Iowa, Coll. of Med., Iowa; 6, 16, 1908, 86.4.
Syracuse Univ. Med. Coll., N. Y.; 6, 12, 1912, 84.5.
Univ. of Colorado; 6, —, 1909, 89.8.
Univ. of Edinburgh, Scotland, N. B.; 7, 27, 1906, 85.3.
Univ. of Ill., Med. Dept., Ill. (6, 4, 1907), 90.3; (4, 18, 1900), 79.8 plus 5, 84.8; (5, 20, 1902), 75.8 plus 5, 80.8; (6, 4, 1912), 75.
Univ. of Md.; 6, 1, 1909, 81.6*.
Univ. Med. Coll., Mo.; 3, 28, 1899, 75.4 plus 5, 80.4.
Univ. of Michigan; 6, 7, 1912, 88.4.
Univ. of Minnesota; (6, 8, 1911), 89.9; (6, 6, 1901), 77 plus 5, 82; (6, —, 1895), 76.6 plus 5, 81.6.
Univ. of Montpellier, France; 11, 16, 1910, 78.3.
Univ. of Penn., Med. Dept., Pa.; 6, 15, 1904, 77.
Willamette Univ., Med. Coll., Oregon; 3, 28, 1904, 81.6*.

Failed.

Coll. Phys. & Surgs., S. F. Calif.; (6, 6, 1912), 70.6*; (6, 8, 1911), 67.3**; (6, 8, 1911), 15.1.
Hahnemann Med. Coll. of the Pac.; 4, 25, 1912, 72.5.
Barnes Univ., Med. Dept., Mo.; 5, 9, 1908, 67.6.
Bowdoin Med. Coll., Maine; 7, 8, 1896, 56.3 plus 5, 61.3.
Denver Homeo. Coll., Colorado; 4, 21, 1904. Denver & Gross Coll. Med., Colorado; 5, 18, 1906, 73.1.

Eclectic Med. Coll., Cincinnati, Ohio; 4, 14, 1903, 64.5 plus 5, 69.5.
Hosp. Coll. of Medicine, Ky.; 6, 18, 1896, 69.3 plus 5, 74.3.
Laura Memorial Woman's Med. Coll., Ohio; 5, 7, 1903, 55.9 plus 5, 60.9**.
Med. Coll. of Indiana (Univ. Ind.), 4, 22, 1904, 62.6.
Missouri Med. Coll., "Washington Univ.," Mo.; 3, 2, 1886, 60.1 plus 10, 70.1.
Omaha Med. Coll., Nebr.; 4, 4, 1895, 69.3 plus 5, 74.3*.
Tennessee Med. Coll., Tenn.; 5, 20, 1908, 63.8*.
Univ. of Ill., Coll. Med. & Surg., Ill.; 6, 4, 1912, 70.2*.
Univ. of Maryland; 3, —, 1883, 64.5 plus 15, 79.5.
Univ. of Nashville, Med. Dept., Tenn.; 3, 27, 1902, 74.2 plus 5, 79.2.
Univ. of Pittsburgh, Pa.; 6, 14, 1911, 70.9.

Osteopathy—Passed.

L. A. Coll. of Osteopathy, Calif.; 1, 30, 1913, 88.1, 85.4, 83.6, 82.8, 81.8, 80.8, 75.4.
Pac. Coll. of Osteopathy, Calif.; 1, 30, 1913, 91.6, 86.3.
S. S. Still Coll. of Osteopathy, Iowa, (1, 29, 1903), 79.6 plus 5, 84.6*; (6, 23, 1904), 80.5; (1, 31, 1907), 75.

Osteopathy—Failed.

Am. Sch. of Osteopathy, Mo.; 6, 14, 1906. L. A. Coll. Osteopathy, Calif.; 6, 6, 1912, 74.1.
Am. Sch. of Osteopathy, Mo.; (6, 25, 1903), 62.9 plus 5, 67.9; (1, 23, 1913), 64.
L. A. Coll. of Osteopathy, Calif.; (1, 30, 1913), 72.5; (6, 6, 1912), 70.8*; (1, 30, 1913), 66.5; (1, 27, 1910), 66.2****; (1, 26, 1912), 63.9**; (6, 6, 1912), 22.8 (in three subjects only).
Pac. Coll. Osteopathy, Calif.; (6, 20, 1912), 71.4*, 69.7, 57.1.

* Taken before.

New Licentiates—Medical Doctors.

Anderson, Harry J.; Anderson, A. C.; Anérbach, Louise; Aoyagi, K.; Babcock, R. A.; Brandel, H. McP.; Brown, G. W.; Burns, F. W.; Cashatt, R. D.; Clemons, E. J.; Collier, E. MacV; Davidoff, O. M.; Davison, J. T.; Dowling, S. W.; Essenson, O. S.; Edwards, H. W.; Edgar, N.; Felt, F. R.; Friesen, J. F.; Fulton, P. R.; Harcourt, A.; Hastings, J. W.; Hiebert, J. P.; Hildreth, H. L.; Jenkins, L. W.; Keith, K. E.; Kerns, H. N.; Koch, N.; Lees, R. B.; Lewis, E. G.; Long, T. S.; Loughridge, J.; Lovejoy, E. D.; MacCloskey, R. C.; Mann, H. H.; Mason, J. S.; Mitchell, L. S.; Moore, T. V., Jr.; Morse, D. H.; Nelson, H. E.; Nelson, I. M. S. H.; Oricchia, A. P.; Ostrom, E. E.; Peattie, J. F.; Powell, R. C. T.; Probasco, H. G.; Putman, F. L.; Reid, E. C.; Reiss, O.; Ringolsky, S.; Ryan, L. R.; Ryder, B. E.; Saphro, V. O.; Schurmeier, H. L.; Schutz, M. H.; Simpson, W. I.; Smiley, A. C.; Smith, W. H.; Snyder, J. R.; Stagner, C. E.; Telfer, G. J.; Thomson, H. S.; Walters, P. R.; Warren, E. L.; McDonnold, P. E.; Taylor, R. L.—Honorably discharged U. S. Surgeons.

New Licentiates—Osteopaths.

Archer, E. F.; Bradbury, C. C.; Breisch, A. M.; Burnett, J. O.; Chandler, L. C.; Freestone, J. W.; Hull, L. L.; Humiston, S. G.; McLeod, M. M.; Milliken, C.; Treat, C. L.; Yoder, E. M.

NEW MEMBERS.

Powell, Dewey R., Stockton.
Walker, G. W., Stockton.
Dozier, Linwood, Stockton.
Smith, Earnest H., Corona, Cal.
Anderton, H. S., San Francisco.
Hoag, C. L., San Francisco.
Lorentz, Robert, Jr., San Francisco.
McDonald, T. E., San Francisco.
Dill, W. W., Redlands.
La Motte, L. A. J., Colton.
McHugh, Thos. Richard, Rialto, Cal.
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Prince, L. D., San Francisco.
Victors, E. A., San Francisco.
Ghidella, E. J., San Francisco.
Barnard, H. D., Sacramento.
Hanlon, Edw. R., Los Angeles.

DEATHS.

Carter, Marion D., Los Angeles.
Thorne, W. S., San Francisco.
Corey, George W., Sawtelle, Cal.
Unger, Charles W., Los Angeles.
Kimball, Margaret V. (in address unknown), died in Healdsburg, Cal.
Coley, Henry Clay, Chico, Cal.
Fearn, John, Oakland, Cal.
Powers, George H., San Francisco, died in Detroit, Mich.
Davis, Wm. Oliver, died in San Francisco.
Proctor, I. M., Petaluma, Cal.

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VOL. XI JULY, 1913. No. 7

EDITORIAL NOTES

"INHUMAN COMEDY."

Any one who thinks that the editorial note in the last issue entitled "New State Insane Asylum" was harsh and unkind to our noble and intelligent (?) legislators (and we have been informed that there are a few such critics), ought to read the editorial in the San Diego *Union* of May 25, 1913. "Yorick," the writer in the San Diego *Union*, thinks the legislators were fools; is it not more charitable to regard them as merely insane? Here is some small portion of what he writes; unfortunately we have not space for all of it:

"I have been trying to review the antics of the legislative circus from the mental attitude of a spectator in the reserved section of a top seat midway between the two rings. (It was a two-ringed affair, populated mostly by clowns.) But the circus folk, including the trained monkeys and the educated pigs, were so absurdly foolish that a fellow-feeling compelled me to throw my own cap into both rings and mix with the freakish aggregation; they appealed so irresistibly to my sense of the ridiculous that I couldn't resist taking part with them in their tomfoolery. There has been nothing like it on the face of the earth since Nebuchadnezzar ate grass in Babylon; there has been no folly quite so viciously imbecile since King David prayed the Lord to turn the counsel of Ahithopol into foolishness to the end that it might not corrupt Absalom conspiring against his father's throne; the only parallel I can find in Scripture is in that remarkable passage declaring that the princes of Zoan are

become fools, the princes of Noph are deceived by the wise men of Pharaoh who have seduced Egypt, even they that are the stay of the tribes thereof. I am something of a connoisseur in foolishness, and I am always intensely interested when I am fortunate enough to find an especially perfect specimen of the folly bird. It was beyond my fondest expectation, therefore, when I met up with that Sacramento bunch of Merry Andrews and consorted with the contents of the legislative menagerie."

Is that bad?

LAWYERS' AND DOCTORS' FEES.

If you consult a lawyer about a transfer of some lot, or the signing of a deed or a contract or something of the sort involving, let us say, only a thousand dollars or so, he will charge you from \$25 to \$any-old-number. But the lawyer will take his pregnant wife to a doctor for an opinion—which he gets for from \$2.50 to \$10; or his child, whose life or death may depend upon the diagnosis and advice given by the physician, and if the doctor charges more than ten or twenty dollars the lawyer will be furious. We forget that it is not our moments of time that we are selling to our patients—or more often giving to them—it is our brains, our thought, our experience, the years of suffering we have felt—and seen—and which we have so heart-breakingly tried to prevent. Perchance it is just because we have suffered so much in ourselves and our patients and feel first for the life of the patient, that it leaves us the poor fools that we are, unable to put a charge upon our advice that would in a measure pay us for the hours of work, anxiety and study that have made it possible to give that advice. Who can put a price on life; on health; on happiness? Least of all the man who is called upon to save and conserve these priceless things, life and health and happiness: for what is life worth without health—and can there be happiness without it? How often do we see the millionaire enjoying his money and his estate and the physician, who saved to him that life, struggling to pay a mortgage on his humble home. Let us, without becoming unduly commercial, try to learn to put a relative value upon everyday things.

TELEPHONE EXCHANGE; AN ERROR CORRECTED.

Some members got the erroneous idea from an editorial in the last issue that the telephone exchange in San Francisco, which is working well and is very useful, was a place where anyone could have a doctor recommended. That was not the idea at all. We took up the suggestion made in the *Journal A. M. A.*, that such a physicians' telephone exchange would be of the greatest use in an emergency. For example, a serious accident occurs at Fillmore and Geary streets and a number of people are injured; doctors are needed immediately. Who knows what physicians live in that section, or are at home, or can be reached quickly? No one. But the exchange has a list of physicians who can be reached at once; out of several hundred doctors

on the list it is easy to go down the line, ringing up one after another and getting those who are at liberty and will go to the scene of the accident. That was the idea expressed and it is difficult to see how any person could get any different meaning out of it, yet such seems to be the case. As a matter of fact, the exchange never recommends a physician; it exists merely to locate the particular physician that some patient may want to reach. Any undertaking that operated differently would not survive, for no one wants to pay to belong to an exchange that plays favorites.

DIVISION OF FEES; THE LOS ANGELES TREATMENT.

The Los Angeles County Medical Association has adopted a plan to fight this petty graft of fee-splitting which may possibly do some good. They print a list of their members and place an * against the name of each member who has stated that he did not split fees. Some of those who have so stated and whose names are so marked may lie, but at any rate they are then known to be liars by at least one other person, and they may have some shame. Do you think it would be a good idea to try this in the case of the membership of the State Society and to print in the Register and Directory, which is issued every year, an * against the names of the members who agree in writing not to split fees? It might do some good; it could not possibly do any harm; would you like to have it tried in the next edition? If so, write to the Secretary what you think about it and he will gladly place your views before the Council at its next meeting. Anything that offers even some small relief from this pickpocket form of dishonesty would seem to be worth trying.

DISHONEST BUSINESS BY MEDICAL (?) JOURNALS.

In San Francisco and in Los Angeles there has recently been much scandal connected with the police departments; policemen, it appeared, had taken a portion of the money which bunco men got from innocent victims. It is a contemptible business, this petty larceny graft, yet it is also in our own profession in those two cities; owners of medical (?) journals are taking their "whack" of the bunco money the promoters of worthless nostrums get from their innocent victims, largely aided by the medical (?) journals which advertise these things. This has been going on for years. Over and over again the STATE JOURNAL has been asked why it did not criticize the *Pacific Medical Journal* and the *Southern California Practitioner*. Ten years ago, when the STATE JOURNAL was in its first year and the fight against dishonest drug preparations had just been started by us, the question came before the publication committee and it was then agreed that the STATE JOURNAL should not criticize any journal published in California until we had become firmly established and no charge of "envy" or "jealousy" could be raised with the least shadow of probability behind it. It has not been easy at all times to live up to that rule, but still it has been done. It was very hard to live

up to it when we saw a typical "write up" of the old style, giving a report of some cases of tuberculosis "cured" by the use of that disgusting fake, "dioradin," appear in the *Southern California Practitioner*. It has not been easy to keep silent when letters have been received asking why the names of some of our members were printed as "associate editors" of these publications that were and are carrying disgraceful nostrum advertising, and the STATE JOURNAL had no word of criticism. It has not been easy not to ask whether any one is really fool enough to pay money to subscribe for a publication like the *Pacific Medical Journal*, each issue of which is principally made up of mushy reprinted stuff and bunco advertisements, in which respect it is a little worse than the *Southern California Practitioner*. If either one of these publications really has 100 actual paid subscribers, then would it seem true that "doctors are the easiest suckers that are!"

The *Southern California Practitioner* was so loaded with nostrum "ads" that, several years ago, some of the men whose names had been carried as "associate editors" requested that the use of their names be discontinued; and it was done. Something over a year ago a new editor took charge of the *Practitioner* and when the subject of the character of the advertising was discussed with him, he said that he was going to drop the notoriously bad advertisements as soon as the contracts ran out; a moth-eaten excuse. To what extent he has complied with his expressed intentions, anyone who can find a copy of the publication can see for himself. The advertising solicitor of the *Southern California Practitioner* was in the office of the STATE JOURNAL only a few weeks ago and made the ingenuous remark that they would take anything that paid and that he did not know of any advertising contract having been rejected! Just money; anything for money! How the physicians whose names are given as "associate editors" of the *Southern California Practitioner* and the *Pacific Medical Journal* can stand that notoriety, it is difficult to see. Perhaps they do not know that their names are being so used, and for that reason we will not print them in this issue.

"THE COLLEGE."

"The name of the corporation is the College of Surgeons," so says the official announcement on page 4, I; but in III it says "The corporation is to be known as the College," and thereafter it refers to itself as THE College. There are titles enough, God knows, to suit the taste of the most fastidious hungerer after titles and letters. We learn that there is to be a Board of Governors consisting of the first five hundred to be invited to attend the emporium by the original Murphy-Martin committee; they are to be known also as Founders of the College; all other ordinary mortals are to be merely Fellows of the College; thus you see the first bunch get two nice titles right at the jump off. There is also to be a Board of Regents selected from the Board of Governors; these lucky mortals will thus have an additional title; and it seems unfair that only twelve should be so blessed

by the Murphy-Martin providence. But there is some small crumb of encouragement for us little fellows; for \$25 and \$5 a year, we may perchance become a "Fellow" and if such is our luck, just think what we can do: "All Fellows of the College shall be designated a Fellow of the College of Surgeons and shall be authorized and encouraged to use the letters F. C. S. after his name on professional cards, in professional directories and in scientific articles published in surgical literature." It does not say whether the big one of the elect is to be encouraged to use these letters after his name in the articles which may be published in newspapers, thus informing the public of the wonderful discoveries and how he can make the crippled-for-life walk and run about. There is to be still further segregation: "The prospective Fellows are to be divided into four classes, A. B. C and D." The natural interpretation of these cabalistic letters would be the last thing that THE College, or the Regents, or the Governors or any of the muchly bedecorated officials would ever think of; we fear they have no sense of humor. Class "A" one would suppose would indicate Fellows especially handy with the Appendix; class "B" should point out to the incontinent or the suppressed a Fellow who is keen on the Bladder; class "C" might be used to designate those of the Fellows who are highly Commercial and notorious fee-splitters; of course, it is obvious that the man with an ingrowing toe nail will have to pick a Fellow from class "D"—or one who does Divers odd jobs. John Jones can now, if he is lucky enough to be liked by someone who was liked by someone who was liked by the Murphy-Martin "committee," have a brand new lot of stationery printed as follows: "John Jones, M. D., F. C. S., F. of C. S., R. of C. S., G. of C. S., class A (or whatever it may be)." Is there a patient who could get untangled from that string of letters and go to some other less distinguished surgeon? We rather guess not! If that accident should occur, the Regents of THE College will undoubtedly fix up some more titles so as to get some more letters. But think of the state of mind of the poor man with a bellyache who thinks it is appendicitis and sends a messenger boy out to get the card of a real Fellow, goes painfully down the list of letters till he comes to the end and then finds that he has got a "B" Fellow or a "D" Fellow instead of an "A" fellow! Shocking! Oh you Fellow!

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ORIGINAL ARTICLES

INTRATRACHEAL INSUFFLATION ANESTHESIA.*

By SAXTON TEMPLE POPE, M. D., San Francisco.

Experimental physiology often paves the way for the advance of surgery. In the field of thoracic operations, it not only paved the way, it forced surgery to follow. Physiologists had demonstrated the possibility of maintaining artificial respiration and pulmonary ventilation many years ago. Vesalius, in the sixteenth century, first used the laryngeal tube to produce inflation of the lungs. In animal experimentation, Legallois, Monroe, Magendie and Marcy all resorted to an apparatus for artificial respiration, using a tracheal cannula. Surgeons followed rather tardily, employing measures such as the Sauerbruck cabinet, the Tiegel positive pressure apparatus, Green's apparatus and similar devices. The list of experimenters who have attacked the problem is a long one: Matas, Fell, Hans Mayer, P. J. Murphy, Vidal, Karewski, Brauer, Janeway and Robinson, Engelken, Willy Meyer, Elsberg, Boothby, Eisenberg, Peck, Pool, Cotton and many others, all contributing something to the general knowledge of the subject. Sterling Bunnell invented a very ingenious positive pressure mask.

But it remained for Meltzer and Auer of the Rockefeller Institute to originate and popularize the successful method now under consideration. Their work met all the fundamental requirements of the situation. They established the facts that pulmonary ventilation might be maintained by a constant stream of air or oxygen, under definite pressure, being blown in the trachea. This insured the proper oxygenation of the blood, inflation of the lungs, favored the continuance of cardiovascular circulation and permitted, if desired, the induction of narcosis by means of a volatile anesthetic.

All of this is done with a comparatively simple apparatus, easy of operation and absolutely sure in its action. At one move it abolishes the cumbersome, uncertain appliances of the past and opens the thorax to the progress of surgery.

The work of Meltzer and Auer, Elsberg, Flint, Janeway and others has proved that intratracheal anesthesia is not only a successful solution of an important phase of intrathoracic surgery, but is a safe adventure. They even claim that it is safer than the usual surgical narcosis.

Intratracheal intubation eliminates the danger zone—that region lying between the lips and the pulmonary alveoli—where so many of the problems of obstructed respiration have their origin. At the same time it establishes and carries on continuous artificial respiration. The patient cannot die from respiratory failure. This immediately abolishes a large percentage of all anesthesia mortalities.

That most delicate and readily disturbed of all essential functions, respiration, that which quickest shows impending shock, and most elusively departs in the crisis of acapnia, is under the positive control of the anesthetist.

Elsberg has proved that we need fear no damage

* Read before the California Academy of Medicine, January 27, 1913.

from the intratracheal tube. Pneumonia, tracheitis and bronchitis are not more frequent after its employment than after any other anesthesia.

Supported by these facts, and having in view the further progress of surgery in this direction, we have, at the University Hospital, constructed a machine which embodies the essential features of a fully developed intratracheal insufflation apparatus.

At this work, Dr. Mary Botsford and I have collaborated under the direction of Dr. Terry.

Utilizing the chassis or framework of a little Tiegel apparatus, which had been imported by the late Dr. Bush, but which already had become obsolete through the rapid progress of anesthetics, we laid the foundation for our machine. On this movable base we set an ordinary electric motor and pump, such as is commonly used to fill air tanks for dentists or nasal specialists. From this pump we conduct the air through metal-wound tubing to a large wash bottle, containing and surrounded by warm water. This serves not only as a storage tank for the air, giving a more steady stream, but warms, washes and moistens the atmosphere which

absolutely prevents the ether by any chance being sucked up into the tubing and injected into the lungs. This accident has happened at least once in the human in the East, and several times in our experience during the experimental stage of the machine we have seen it occur in animals.

Before the air comes to the ether jar there is a side track which leads to the safety escape. In this machine this is a water valve. We use it here simply because it was already on the Tiegel apparatus. This escape prevents the pressure rising above a certain mark, and permits the regulation of pressure simply by raising or depressing the movable tube which is submerged in the water.

As the filtered, warmed, moistened etherized air is about to enter the final course of tubing on its pulmonary mission, it passes one more restriction—a mercury manometer. Here the pressure is gauged. Physiological experiments have shown that it requires an air pressure of 15 to 20 mm. mercury in the machine fully to inflate the lungs; more than this is dangerous in the opened thorax, and even less is necessary in work on animals. Here a greater pressure, even in the closed thorax, produces rupture of the alveoli and a retro-peritoneal emphysema. This was first demonstrated at the U. C. Research Laboratory by Tait. The ether jar is surrounded by a second jar in which hot water is kept if desirable. Sometimes, when the patient requires a large amount of anesthetic, this added warmth is necessary to increase the volatilization of the ether.

We can with our machine raise the temperature of the etherized air in the delivery tube from 25° C.—the room temperature—to 48° C.—a temperature too great for safety. Experience has taught us that water at 60° C. in the jars gives the required 36° in the catheter.

There is nothing original in our machine. We have simply taken the things at hand and applied them to the requirements of the case. The essential is a constant flow of warm, moist air, carrying varying proportions of ether, under a pressure adjustable from 10 to 20 mm. mercury, and incapable of rising above this.

We have also constructed another machine—much less cumbersome, having the pump separate, a rubber bag to equalize the pressure of air, smaller wash bottles, mercury safety valve, electric lights to produce warmth, and a monovalve regulator for the air and ether.

Both machines also have a stop cock for the attachment of an oxygen tube, so that this may be run through the ether or serve if the pump should break, and to be used at the last of the anesthesia to blow out the ether, thus quickly rousing the patient from his narcosis.

Having your machine and your patient, the next thing is to connect them. This is done in the adult by the introduction of a No. 21 or 22 F catheter into the trachea, a distance of 25 or 30 centimeters from the teeth. This is no easy matter—in our experience. It is advisable to have administered a preliminary injection of morphine and scopolamine, and then to have the patient thoroughly anesthetized with ether.

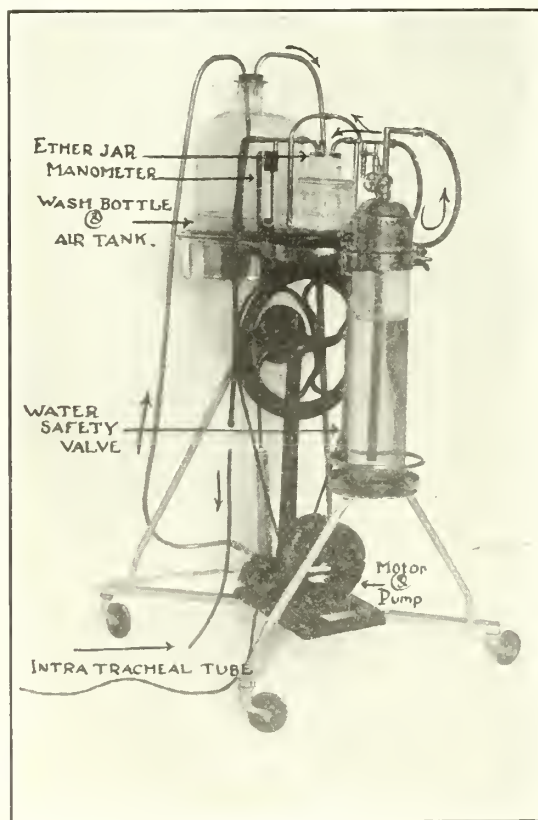


FIG. I.

must later be forced into the lungs. From this large bottle the air is conducted to a simple arrangement of nicked tubing and stop cocks, which is so constructed that the air may pass either straight ahead, or go through the ether jar, or do both. As it goes through the ether jar it but skims the surface of the ether. There is no tube leading down under its surface. Carrel, in his laboratory experiments, found that this is all sufficient when the ether and air are warmed. And it ab-

In this condition, after inserting a mouth gag, the first or second finger is put well down the throat, the epiglottis located and pushed well forward; then the introducer, loaded with the disconnected catheter, is passed along the finger into the rima glottidis. As soon as the catheter is in the larynx, you are made aware of the fact by the hissing of air in the tube and the coughing expiration of the patient. A silent, quiet insertion is characteristic of a miss: an esophageal catheterization. When the tube really is in the larynx, it is pushed down well and the introducer slipped off; then the connection is made with the machine. It is well to have the machine running all the time, so that no interruptions occur in the anesthesia and respiration. Sufficient air escapes around the catheter in the trachea for all purposes of pulmonary ventilation.

We have tried the introduction of this tube with the assistance of the laryngoscope, but have found it more difficult with the patient on the operating table than we anticipated.

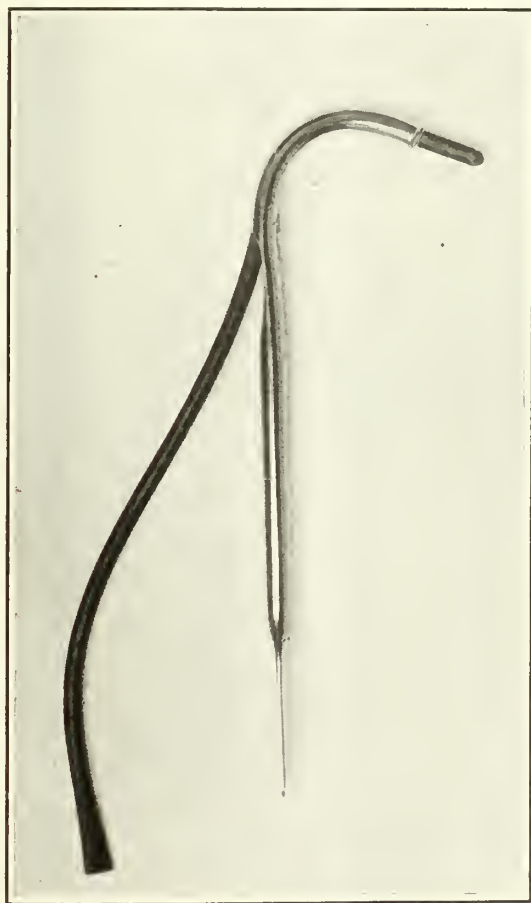


FIG. II.

In some subjects, where the jaws are projecting and there is more or less ankylosis, the introduction by touch is very difficult; but as we gain experience, it becomes progressively a more simple process. The introducer is simply a large hollow sound, permitting the passage of a 23 F catheter. Boothley I believe invented it.

Our catheters are not boiled, because this softens them, but they are cleaned in a phenol solution and lubricated with vaseline.

Some of our early patients complained of sore throat after recovery from the anesthesia, and a little laryngitis; but this we believe was due more to the unsuccessful attempts at intubation than to the irritation of the tube when in place.

Anesthesia proceeds smoothly from this point on. The patient can quickly be brought under control of the anesthetic. Respiration continues along with the insufflation in the lighter degrees of narcosis. In more profound sleep, respiratory excursions are abolished, without particular danger to the patient. They return naturally upon lessening the narcosis or after stopping the air current. This extreme phase, however, is seldom necessary and need not be approached unless desired. At any time the ether may be cut out entirely and only air or oxygen administered.

At the termination of the operation the patient can be roused within two or three minutes by blowing him out with oxygen.

The tracheal tube is left in until breathing is good, and a slight coughing warns us of the return of the laryngeal reflex.

We have used this apparatus in eighteen cases at the University Hospital. Only two of this number have been thorax cases. But we have found it of unquestionable service in operations upon the tongue and jaw. Heretofore, even under the smoothest anesthesia, these operations have been punctuated by coughing, choking, obstructed respiration, reflex laryngeal spasm, inspiration of blood and interruptions without number. With intratracheal anesthesia they become a quite easy performance. The blood takes care of itself. There is no danger of inspiration of clots or respiratory failure.

Meltzer and Auer have computed that the proper size catheter for insufflation is one that fills one-half the aperture of the larynx. If increased obstruction be necessary to inflate the lungs fully at the closure of a thoracic operation, compression of the throat above the thyroid cartilage will serve the purpose.

We have not tried the Killian laryngoscope to assist the intubation. Possibly this would be a marked advantage.

The Sewell mouth gag, when tried, was no help in adults. With children the epiglottis can be seen plainly with this instrument in place, which facilitates the intubation very materially.

In the experimental laboratory we use it constantly as a method of anesthesia, and there it certainly reduces the anesthesia risk. It is practically impossible to kill an animal under intratracheal anesthesia, unless it be bled to death. Cardiac death is exceptional in laboratory animals. Respiratory failure was an ever present menace.

Carrel has used the same form of anesthesia for several years, and it has made possible some of his most astonishing experiments. A number of these we have duplicated in our laboratory, and we expect a definite advancement in surgical research from the employment of this very useful, safe, and indispensable method of anesthesia.

RECURRENCE OF HYDROCELE AFTER RADICAL TREATMENT.

By DUDLEY TAIT, San Francisco.

From the laboratory of surgical research of the University of California.

Ten years ago the radical treatment of hydrocele was *res judicata*. Eversion and total resection shared the favors of surgeons.* To resection were assigned the relatively rare cases of symptomatic vaginitis and chronic pachyvaginitis. All other varieties were treated by eversion. Of late, however, the advantages claimed for eversion have been questioned, numerous recurrences being reported after its use. Hence a return to the so-called method of total resection of the tunica vaginalis, which our German friends persist in calling Bergmann's operation, although it was practiced by Celsus, Albucassis, Ambroise Paré, Dupuytren and others.

An extensive personal experience with eversion and a careful study of many published cases of recurrence following this operation have convinced me that the great majority of said failures were due to (1st) errors in technic; (2nd) errors in the choice of the operative procedure. The further elucidation of these statements is my excuse for the present causerie.

In the operation of eversion as originally performed by Vautrin, Doyen and subsequently Winkelmann, no attempt was made to approximate the edges of the everted serosa. The frequency of recurrence soon reported from all sides led Legueu and Jaboulay to stitch the edges of the everted tunica as high as possible around the cord by means of two or three catgut sutures. Even then the redundant serosa would occasionally get free, sagging in the direction of the testis, the folds of the serosa adhering to each other, producing small pockets, thus inviting recurrence.

Longuet (1900) perfected and simplified the operation of eversion by doing away entirely with all dissection, omitting the delivery of the tumor and making a new bed for the testicle.

Under local anesthesia, a transverse fold of the scrotum over the testicle is taken up and cut with the scissors down to the serosa which is immediately taken up and cut in like manner. Neither incision should exceed three or four cm. By means of pressure from behind the testicle is made to escape from its serous sac. It is then lifted upward and forward between two fingers, avoiding traction on the cord which will invariably give rise to pain and nausea.

The different scrotal layers (tunica and overlying fibrocellular tissue) will be seen to retract in the direction of the cord, the posterior surface of which comes directly into view. Note that there has been no dissection, no delivery of the tumor.

The edges of the everted tunica are stitched together by means of two or three catgut sutures passing through the cellular tissue of the posterior surface of the cord. The testicle is not replaced in its original position, but a new bed is provided

for it in the middle of the inner edge of the incision, by inserting both index fingers into the loose connective tissue adjoining the raphé and then rapidly separating them a distance of five or six cm. This step is generally painless; it is always bloodless. The testicle is then carefully dropped into the resulting cavity, which is inside of and parallel to the old cavity. In its new position the testicle is slightly twisted on its axis, being in retro-lateral version instead of in normal antero-version. The scrotal wound is closed by means of Michel staples or with a Cushing stitch.

It is uncommon to keep the patient in bed after the first day; indeed, I have seen patients walk home two hours after this operation and resume work the next day. With a properly fitted suspensory the resulting local reaction is habitually insignificant. Mobility of the testicle may be noticed as early as the third day. It is almost invariably present at the time of removal of the staples. Close examination will then show an anterior attachment to the testicle.

My sole excuse for referring in detail to a procedure already thoroughly discussed in a previous publication is the desire to show that the modifications of a good operation have caused the majority of recurrences noted in recent surgical literature.

Recurrences may be divided into three groups. In the first small group, the operation of eversion was done without securing the everted tunica. A mere reference to surgical literature would have prevented such a mistake. In the second group, by far the most numerous, the operation differed from that of the preceding group in one unimportant point: the opening in the tunica was smaller; but here again no suturing was done. This constitutes the widely heralded Andrews' bottle operation, which its author in 1907 and again in 1912 (*Keen's Surgery*, Vol. IV) recommended without reserve and urged "that it supersede all other operations for hydrocele."

In his original article (*Annals of Surgery*, December, 1907), Andrews paid no attention to the development of the operation of eversion and ignored all the publications on this subject for the preceding six years.

In the bottle operation there are two errors of technic; (1st) the delivery of the sac is a totally unnecessary procedure; it may cause hemorrhage and always prolongs the patient's rest in bed; (2nd) the failure to stitch the everted tunica predisposes to recurrence through the sagging of the serosa, which brings the secreting serous surfaces together, forming pockets or even reproducing the original hydrocele.

The latter condition I have actually seen in operating a recurring hydrocele in which the bottle operation had been done two months previously. I had noticed a similar state of affairs in one of my cases in 1899 when eversion was practiced without stitching the everted serosa.

Recurrences after the bottle operation were reported by Eastern surgeons several years ago (Lyle, Moschowitz, etc.), and of late the list of failures seems to be increasing.

In the third group of recurrences after eversion

*I firmly believed that the injection method had been relegated to history; recently, however, I learned that it still constitutes the treatment of choice at one of our local teaching hospitals.

are the cases of hydrocele due to subacute infections, tuberculosis of the epididymis, chronic pachyvaginitis. Eversion failed me in two cases belonging to this group (one unknown infection and one tuberculosis), but it succeeded admirably in several cases of pachyvaginitis.

Experience, however, has proved the superiority of excision in the majority of hydroceles belonging to this group. Recurrence after the so-called total excision of the tunica was reported by Boyer in the latter part of the 18th century. This is easily understood when one remembers the anatomy of the region: the testicle lies outside of the closed serous sac; consequently, in the so-called total excision, that part of the tunica covering the testicle is left untouched, and may, under certain pathological conditions, continue to excrete, just as a cyst in any part of the body may reproduce itself after accidental tearing has occurred during its removal.

It was the latter consideration that led Bartlett, the clever St. Louis surgeon, to advocate the excision of the unopened hydrocele thus disposing of every particle of the excreting surface. Bartlett described his procedure in 1909, as follows: "After turning out the sac in the ordinary manner it is easiest to begin its removal at the spermatic cord; the loose tissue connecting these two structures can readily be separated by blunt dissection, as can the tumor from the testicle everywhere except at its lateral reflections from that organ, where some cutting must be done. No fluid need be lost and one will be surprised at the ease and quickness with which the dissection can be accomplished. Some small vessels will have to be ligated."

I have never performed this operation, and I know of no one who has resorted to it in other than thin wall hydroceles, that is to say, in the class of cases where it is unnecessary—a cure generally following a much simpler and safer procedure: eversion. Conservatives have accused the radical treatment of hydrocele of having caused a long list of disorders (epididymitis, testicular sclerosis, atrophy, sterility, dystrophy). Clinical and post-mortem experience have apparently ruled out all of these claims.

According to Charrin, Moussu, LePlay and Corpéchat, Ancel and Villemain, the role of the serosa is not merely mechanical; it has a trophic influence on the subjacent organ. From their experiments on sheep and guinea pigs they conclude that eversion or excision of the tunica invariably leads to marked interstitial and peripheral testicular hyperplasia, fatty degeneration and atrophy of the seminiferous tubes. As proof, however, that infection played a very important part in these experiments the following may be cited:

1. The presence of testicular adhesions even as late as a year after the experiment.
2. The predominance of the areas of atrophy on the surface of the testicle.

Hermann, after some very faulty experiments, concludes that the reaction following the radical treatment of hydrocele habitually causes the loss of the testicle, "although regeneration may take place."

From my own animal experiments I am con-

vinced that the protective role of the tunica vaginalis, like that of other serous membranes, has been greatly overestimated. Among the results of these experiments (eversion, resection, injection of irritants), the following are of interest:

1. Infection of the tunica is invariably followed by a marked change in the testicle; reduction in size, sclerosis and peripheral areas of atrophy.

2. Under strictly aseptic conditions eversion is not followed by atrophy of the testicle; the adhesions that occur between the testicle and the surrounding cellular tissue generally disappear within a few weeks when the testicle becomes free and normally movable as if within a new cavity. A peritesticular sclerosis is invariably present; there is a thickening of the albuginea, but the sclerosis does not extend into the parenchyma or involve the epididymis or the vas.

3. The testicular sclerosis is not more marked after eversion than following the injection of irritants into the tunica; it is frequently less pronounced.

4. Excision of the tunica gives rise to more marked testicular reaction than does eversion.

5. That the function of neither the interstitial nor the spermatogenic cells is affected by bi-lateral eversion of the tunica vaginalis is sufficiently proved by the total absence of developmental abnormalities in and the multiplication of puppies after said operation.

6. It would seem, nevertheless, that the testicle is no exception to the law of general pathology relating to the creation of points of lessened resistance by traumatism or infection.

CONCLUSIONS.

1. Although eversion is only a palliative measure and does not reach the determining factor, it will, when properly performed, prove eminently satisfactory in over 90% of hydroceles. The medium size, thin wall, chronic hydroceles are the most favorable for eversion.

2. Longuet's method of eversion, *without delivery of the sac*, is the simplest, safest, and least liable to recurrence. It frequently succeeds even in very thick wall hydroceles. A few symptomatic hydroceles recur after eversion.

3. Recurrence frequently results from failure to stitch the edges of the everted tunica vaginalis.

4. Andrews' bottle operation is a failure; it is a step backward in the history of the therapeutics of hydrocele, and its adoption accounts for a large proportion of the recurrences noted in this country.

5. Excision is preferable to eversion in the rare cases of chronic pachyvaginitis. The so-called total excision of the tunica vaginalis is not total, and recurrences following its use have been reported.

6. Excision of the unopened hydrocele is the only complete method of removing the entire excreting surface. It has not been resorted to in thick walled hydroceles; in thin wall hydroceles it is an unnecessarily complicated procedure.

7. Of the numerous objections made by conservatives to the radical treatment of hydrocele

none resists either a thorough clinical or the experimental test.

8. The protective role of the tunica vaginalis has been overestimated.

9. Under strictly aseptic conditions experimental eversion of the tunica is not followed by atrophy of the testicle; it may produce a mild peritesticular sclerosis.

Discussion.

Dr. R. L. Rigdon: The paper of Dr. Tait does not leave much to be said in the way of discussion for it has covered the ground so thoroughly that but little can be added to it. The best that I can do is to simply mention some personal experiences that I have had with the operations for hydrocele, and none of these experiences are out of the usual. As a rule hydroceles are so easily taken care of that we do not consider them at all seriously; they are easily disposed of in one or other of the ways known to us. Years ago, when Keyes proposed as a remedy the injection of carbolic acid, he stated that it was a painless method and that the patient could go away from the office after the injection without being confined to bed. I was much impressed by his reports and began to use the injection method. At first I was afraid to use carbolic acid in quantities sufficient to produce the desired results, but having gained confidence, I used more acid, was more careful in the technic and the results were satisfactory. So far as I know, there has been but one untoward result, and that occurred years ago in an old man. In this instance sloughing of the scrotum occurred. I always felt that it was my fault rather than that of the operation, because it was employed in an unsuitable case. In properly selected patients the results will be satisfactory. At the clinic, if we desire to employ the injection method, we draw off the fluid, inject the acid and send the patient home. We have him return the next or the following day and draw off any inflammatory effusion that may have occurred. I now recall no failures to cure, but I realize that failures may occur.

With reference to the matter of eversion of the testicle, one has to do that operation but once or twice to realize that something more than opening the sac is necessary; the work must be seasoned with a little surgical judgment. If the sac is not opened high enough but a closed space is left at the upper portion, this may readily refill. A specimen procured for me by Dr. Howard Somers illustrates a condition that is sometimes present and which if overlooked might give rise to recurrence. I refer to the little pockets that may be found between the epididymis and the testicle. Occasionally these are quite large and the opening into them is small and after the eversion operation these pockets might close and form cysts in which reaccumulation of fluid would take place. Ordinary judgment would indicate that if the sac were large it is good surgery to cut off a large part of it. The hemorrhage that occurs is very easily controlled. In connection with trimming the sac off, unless one is careful one might cut uncomfortably close to the vas deferens but this mishap need not occur if one will bear it in mind. I have had no personal experience in transplanting the testicle but we know that it can be done without injurious results. As to the effects of the various operations on the function of the testicle, I think they are nil.

Dr. M. Krotoszyner: Unfortunately I was too late to listen to Dr. Tait's paper, but I recall a previous paper of his, in which he said that the eversion method for hydrocele can be easily done so that the patient can get up within two days after operation. I cannot verify this by my results; it takes, in my own work, about a week

before the patient is up and about. As regards the operative treatment of hydrocele I think it is wisest to offer the patient, at the present stage of our knowledge, the radical operation, which consists in either excision of the tunica—after Volkmann, or the eversion of the tunica around the cord after Winkelmann. In those cases where the tunica is much thickened and diseased I have held to the first procedure as the better method. In those instances, though, where the tunica was only moderately diseased, I have resorted to a combination of both methods of everting the tunica after removing part of it and stitching the cut-edges around the cord. I have followed a good many of my cases as regards end-results and must say that I have not seen so far any relapse of hydrocele after the careful performance of any of these radical operations. For uncomplicated cases of hydrocele we can look for no better, quicker or safer operation than the eversion method.

Bibliography.

- Ambroise Paré. Edition Malgaigne. Vol. i, p. 91.
 Vautrin, in Gross-Pathol. et chir. clinique, Vol. iii.
 Doyen. Archiv. Prov. de Chir., 1895, Vol. iv, p. 706.
 Jaboulay. Province Medicale, 1895, p. 139.
 Leguen. Congres de Chir., 1897. Revue de Chir., 1899, p. 601.
 Prat. Indian Medical Gazette, 1898, p. 287; 1899, p. 616.
 Winkelmann. Centralbl. f. Chir., 1898, Bd. 25, p. 1092.
 Longuet. Presse Medicale, Sept. 21, 1900; Progres Medical, Oct. 30, 1900; Sept. 21, 1901.
 Honde. Thesis. Paris, 1900.
 Dudley Tait. Annals Surgery, April, 1901; Calif. St. J. of Med., Dec., 1904, p. 363.
 Gambier. Thesis. Paris, 1901.
 Pelicier. Thesis. Paris, 1902.
 Cailleron. Thesis. Paris, 1902.
 Anger. Thesis. Paris, 1903.
 Gaynes-Doyle. Brit. Med. J., Jan. 28, 1905, p. 184.
 Andrews, E. Wylls. Annals of Surgery, Vol. 46, 1907, p. 915; Keen's Surgery, Vol. iv, p. 607.
 Bartlett. J. A. M. A., Dec. 25, 1909.
 Moschowitz, A. V. Annals of Surgery, Vol. 55, 1912, p. 113.
 Lyle. Annals of Surgery, 1912, p. 112; Surg. Gyn. & Obstetrics, Dec., 1912, p. 733.
 Gibson. J. A. M. A., Jan. 2, 1910; Annals of Surgery, 1912, p. 113.
 Charin, Moussu et LePlay. Bull. Soc. Biol., Jan., 1905; Bull. Soc. Anatomique, May, 1906.
 LePlay et Corpéchet. Bull. Soc. Biol., 1904, June 11, p. 964.
 Ancel et Villemin. Bull. Soc. Biol., 1907, Jan. 12, p. 7.
 Vaughan. Trans. Washington Surg. Soc., in Surg., Gyn. & Obstet., Feb., 1912, p. 207.
 Hermann. Archives de médecine expérimentale et d'anatomie pathol., Jan., 1913, p. 51.

THE NATURE OF DISEASE.

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There is difficulty in giving a clear idea of what is meant when we speak of disease although every individual has a concept of the word when applied personally. In a way, the difficulty might be met by simply regarding disease as the negation or opposite of the normal, but the same difficulty applies to the definition of normal. The trouble is in giving a definition which will apply to the species when all our concepts of the conditions are formed from individual experience. It is possible to conceive a normal type of a species by taking the average of weights and measurements at definite ages and the average or usual reactions which the living material exhibits under the influence of external conditions. The structural or anatomical normal type is easier to construct than the physiological or functional, although no two individuals have ever been found in whom all of the compara-

tively coarse measurements made under the Bertillon system agree. How much the physiological type varies is evident when we think of the individuality of our friends. Variability is one of the most striking of the attributes of living things and in which they differ from lifeless bodies. There is nothing individual in a block of marble or in a mass of table salt. The incredible complexity of living material in both chemical and physical structure would render it well nigh impossible for two individuals of a species, even one of the simplest, to be in all respects the same. All that we know justifies us in the assumption that the reactions of a material of the same character and under the same conditions will always be similar, and the variations in reaction by which we recognize individuality indicate differences in structure. We are accustomed in forming both the structural or anatomical and the functional or physiological type of a species to set certain arbitrary limits within which the measurements must fall.

An individual may be said to be healthy when there is such an harmonious adjustment to the environment that the reactions exhibited will be the usual for him and will correspond with the reactions of the species. In disease the reactions differ from the usual, the body temperature may not be the same, indefinite discomfort or even sensations of pain may be experienced, or the mental reactions may differ. Just as individuality is due to underlying structural differences, so disease is due always to certain underlying structural alterations which have been produced in various ways, and in consequence of these structural alterations the reactions exhibited are no longer those usual for the individual or species. It is possible then to define disease as a change produced in living things in consequence of which they are no longer in harmony with the environment. It is evident that such a conception of disease is inseparable from the idea of life; only a living thing can become diseased. In a dead body there was a preceding disease and in consequence of the change or injury produced by disease, that particular form of activity which constitutes life has ceased. Changes such as putrefaction take place in the dead body, but these are changes which would take place in any mass of material similarly constituted and are not influenced by the fact that the mass was once living.

As in the consideration of disease we are dealing with living things, it may be well to consider for a moment some of the most important attributes of living matter. I have already spoken of its complexity of chemical and physical structure in consequence of which variability becomes more easy. Not less striking is its other great attribute, adaptability, in consequence of which the reactions can become so changed that it becomes adapted to an environment which is not the usual. Living matter occurs always in the form of small masses called cells which are the living units. They vary in form, structure and size, some being so large that they can be distinctly seen with the naked eye, while others are so small that they cannot be dis-

tinctly seen with the most powerful microscopes. Each cell contains within it a specially differentiated material called chromatin which is usually aggregated in a mass called nucleus. This chromatin exercises a regulatory function, over the processes of cell life, and to its action the transmission of heredity is due. The living thing or organism may be composed of a single cell, or in the case of the higher animals and plants of great numbers of cells those of the same character being combined in masses to form organs such as the liver or the brain. It is generally believed that the cellular material has a gelatinous or semi-fluid consistency and within the cell is contained within a network. In each cell there are a number of chemical substances of great complexity of molecular structure, and the whole is an extraordinarily complicated structure from every point of view. In a simple cell of not more than $1/2000$ of an inch in diameter there is a more complex organization and more different sorts of activities in progress than would be embraced in the most complex modern household. Certain conditions are essential for the continued existence of living material. It must be surrounded by a fluid or semi-fluid medium in order that there may be interchange with the environment. Having in itself no source of energy, it must constantly receive from the outside a supply of energy in the form of food, and waste substances, formed as the result of the intracellular chemical activity, must be removed. In the case of the more complex animals formed of cell masses, it is evident that there must be certain arrangements by which food may be conveyed and the activities of the several organs co-ordinated to the purposes of the entire organism, and this is effected by the circulation and the nervous system. In the case of many animals, it would seem as though the necessity for a fluid environment did not apply, for the superficial cells of the skin have no fluid around them; these cells are, however, dead and serve a mechanical or protective purpose only.

A simple conception of health and disease can be arrived at by the study of these conditions in a unicellular animal directly under a microscope. For this purpose a small organism called amoeba, which is commonly present in fresh water ponds, may be used. This appears as a small mass seemingly of gelatinous consistency with a clear outline, the exterior part homogeneous, the interior granular. The nucleus which is seen with difficulty appears as a small vesicle in the interior. Many amoeba show also in the interior a small, clear space, the contractile vesicle, which alternately contracts and expands and which probably assists in the movements of the intra-cellular fluid and in excretion. The interior granules often change their position, showing that there is motion within the mass. The amoeba slowly moves along the surface of the glass by the extension of blunt processes formed from the clear outer portion which adheres to the surface and into which the interior granular mass flows. This movement does not take place by chance, but in definite directions and may be influenced. The amoeba will move towards certain substances which may be placed in the fluid and

away from others. In the water there are usually other organisms, particularly bacteria, on which the amoebae feed. When a bacterium comes in contact with an amoeba, it is taken into its body by becoming enclosed in processes which the amoeba protrudes. The enclosed organism lies in a small clear space in the amoeba surrounded by fluid which has been shown to differ in its chemical reaction from the general fluid of the interior. This clear space which may form at any point in the body corresponds to a stomach in a higher animal and the fluid within it to the digestive fluid or gastric juice. After a time the enclosed organism disappears, it has undergone solution and is assimilated; that is, the substances of which its body was composed have been broken up, the molecules rearranged and a part has been converted into the substance of the amoeba. If minute insoluble substances such as particles of carmine are placed in the water, these may also be taken up by the amoeba; but they undergo no change and after a time they are cast out. Under the microscope only the gross vital phenomena, motion of the mass, motion within the mass, the reception and disintegration of food particles and the discharge of inert substances can be observed. The varied and active chemical changes which are taking place cannot be observed.

Up to the present the environment of the amoeba is that to which it has become adapted and which is favorable to its existence. Under these conditions its structure conforms to the type of the species as do also the phenomena which it exhibits, and it can assimilate food, grow and multiply. If, during the observation, a small crystal of salt be placed in the fluid, changes almost instantly take place. Motion ceases, the amoebae appear to shrink into a smaller compass, and they become more granular and opaque. If they remain a sufficiently long time in this fluid, they do not regain their usual condition when placed again in fresh water. None of the phenomena which characterized the living amoebae appearing, we say they are dead. After a time they begin to disintegrate and the bacteria contained in the water and on which the amoebae fed, now invade their tissue and assist in the disintegration. By varying the duration of the exposure to the salt water or the amount of salt added, a point can be reached where some but not all of the amoebae are destroyed. Whether few or many survive depends upon the degree of injury produced. Much the same phenomena can be produced by gradually heating the water. It is even possible to gradually accustom such small organisms to an environment which would destroy them if suddenly subjected to it, but in the process of adaptation many individuals will have perished.

It is evident from such an experiment that when a living organism is subject to an environment to which it has not become adapted and which is unfavorable, such alterations in its structure may be produced that it is incapable of living even when it is again returned to the conditions which are natural to it. Such alterations of structure or injury are called the lesions of disease. We have seen that in certain individuals the injury was

sufficient to inhibit for a time only the usual manifestations of life; these returned when the organism was removed from the unfavorable conditions, and with this or preceding it the organisms, if visibly altered, regained the usual form and structure. We may regard this as disease and recovery. In the disease there is both the injury or lesion and the derangement of vital activity dependent upon this. The cause of the disease acted on the organism from without, it was external to it. Whether the injurious external conditions act as in this case by a change in the surrounded osmotic pressure, or by the destruction of ferments within the cell or by the introduction into the cell of substances which form stable chemical union with certain of its constituents and thus prevents chemical processes taking place which are necessary for its life, the result is the same.

The experiments with the amoebae show also two of the most striking characteristics of living matter. 1. It is adaptable. Under the influence of unusual conditions alterations in structure and possibly in substance may take place in consequence of which the organism, under such external conditions, may still exhibit the usual phenomena. The organism cannot adapt itself to such changes without undergoing change in structure although there may be no evidence of such change visible. This alteration of structure does not constitute a disease provided the harmonious relation of the organism with the environment be not impaired. An individual without a liver should not be regarded as diseased provided there can be such an internal adjustment that all of the vital phenomena go on in the usual manner without the aid of this useful and frequently maligned organ. 2. It is individual. In the varying degrees of exposure to unfavorable conditions some, but not all, of the organisms were destroyed; in the slight exposure few, in the longer many. Unfavorable conditions which will destroy all individuals of a species exposed to them must be extremely rare.* There is no such individuality in non-living things. In a mass of sugar grains each grain shows just the same characteristics and reacts in exactly the same way as all the other grains of the mass. Individuality, however expressed, is due to structural variation. It is almost impossible to conceive in the enormous complexity of living things that any two individuals, whether they be single cells or whether they be formed of cell masses, can be exactly the same. In no way is the individuality of living matter more strongly expressed than in the resistance to disease. The variation in the degree of resistance to an unfavorable environment is seen in every tale of shipwreck and exposure. In the most extensive epidemics certain individuals are spared, but here care must be exercised in interpreting the immunity, for there must be differences in the degree of exposure to the cause of the epidemic. It would not do to interpret the immunity to bullets in battle as due to any individual peculiarity, save

* They do, however, take place, since within comparatively few years whole species have completely disappeared; for example, the great auk and the passenger pigeon. In these cases it is not known what part disease played in the destruction.

possibly to a tendency in certain individuals to remove his mass from their vicinity, and in battle and in epidemics the factor of chance enters. No other living organism is so resistant to changes in environment as is man, and to this resistance he owes his supremacy. By means of his intelligence, he can change the environment. He is able to resist the action of cold by means of houses, fire and clothing; without such power of intelligent creation of the immediate environment the climatic area in which man could live would be very narrow. Just as disease can be acquired by an unfavorable environment, man can so adjust his environment to an injury that harmony will result in spite of the injury. The environment which is necessary to compensate for an injury may become very narrow. For an individual with a badly working heart, more and more restriction of the free life is necessary until finally the only environment in which life is even tolerably harmonious is between blankets and within the walls of a room.

The various conditions which may act on an organism producing the changes which are necessary for disease are manifold. Lack of resistance to injury, incapacity for adaptation whether it be due to a congenital defect or to an acquired condition, is not in itself a disease, but the disease is produced by the action on such an individual of external conditions which may be nothing more than those to which the individuals of the species are constantly subject and which produce no harm.

When the causes of disease are considered in their entirety, it is found that they are extrinsic and act on the body from without, and it is important to understand the relations which the body of a highly developed organism such as man has with the world external to him. These relations are effected by means of the various surfaces of the body. On the outside is the skin, a surface of large extent and many times increased by the various glands connected with it, for a gland, however complicated in structure, is nothing more than an infolding of a surface. This external surface communicates at two places, the mouth and the anus with the great internal surface formed by the lungs and the intestine. The internal surface of the lungs is estimated at 98 square yards, this large extent being due to the extensive infoldings just as a large surface of thin cloth can, by folding, be compressed into a small space. The intestinal canal from the mouth to the anus is thirty feet long, the circumference varies greatly, but an average circumference of three inches may safely be assumed which would give a surface of between seven and eight square yards, this being many times multiplied by adding the surface infoldings and the internal surfaces of the large glands such as the liver and pancreas which are connected with it. There is a third surface, the genito-urinary surface, formed by the urinary and genital canals and which communicates with the external surface by one opening only.

The simplest of the diseases to understand are these known as the infectious diseases which are caused by living organisms which enter into the body and living at the expense of it cause disease.

The entry into the body is effected by means of the surfaces mentioned.

Such diseases play an enormous part in the life of man, the majority of deaths are caused directly or indirectly by infection, no other diseases have been so much studied and in no other department of science has the knowledge obtained been capable of such direct application in promoting the health, the efficiency and the happiness of man. This knowledge has added years to the average length of life, it has rendered possible such great engineering works as the Panama Canal, and has contributed to the food supply by making habitation possible in large and productive regions of the earth, which formerly, owing to the presence of conditions causing disease, were uninhabitable. It would not be too much to say that our modern civilization is dependent upon this knowledge. The massing of the people in large cities, the factory life, the much greater social life which are all prominent features of modern civilization would be impossible were there no means to control the infectious diseases. Means of communication, and the rapidity of communication, and the general movement of people which have developed in equal ratio with the massing, would serve to widely extend every local outbreak of infection.

These diseases appearing in the form of great epidemics have often been a leading factor in determining historical events, for they have led to the defeat of armies, the fall of cities and of nations. War is properly regarded as one of the greatest evils that can afflict a nation, since it destroys men in the bloom of youth, at the age of greatest service, and brings sorrow and care and poverty to many families. But the most potent factor in the losses of war is not the death in battle, but the deaths from disease. If we designate the lives lost in battle, the killed and the wounded who die, as 1, the loss of the German army from disease in 1870-71 was 1.5, that of the Russians in 1877-78 was 2.7, that of the French in Mexico was 2.8, that of the French in the Crimea, 3.7, that of the English in Egypt, 4.2. The total loss of the German army in 1870-71 from wounds and disease was 43,182 officers and men, and this seems a small number compared with the deaths in the same period in Prussia alone, 129,128, from smallpox. In the Spanish-American war there were 20,178 cases of typhoid fever with 1580 deaths. In the South African war there were in the British troops 31,118 cases of typhoid with 5,877 deaths, and 5,149 deaths from other diseases, while the loss in battle was 7,582. The Athenian plague which prevailed during the Peloponnesian war, 430-425 B. C., not only caused the death of Pericles but according to Thucydides, a loss of 2800 Athenian soldiers and brought about the downfall of the Athenian hegemony in Greece. In the Crimean war between 1853-59, 1600 English, 80,000 French, 800,000 Russians died of typhus fever. The plague contributed as much as did the arms of the Turks to the downfall of Constantinople and the Eastern Empire in 1450. It was the plague which in 1348 overthrew Sienna from her proud position as one of the first of the Italian cities and the rival

of Florence, broke the city forever, leaving it but a phantom of its former glory and prosperity. The work on the great cathedral which had progressed for ten years was suspended and when resumed it was upon a scale adjusted to the diminished wealth of the city, and the plan restricted to the present dimensions. It is rarely that any thing is all to the bad, for the same plague saw the birth of the novel in the tales of Boccaccio, which were related to a delighted audience of the women of the Renaissance who had fled from the plague in Florence to a rural retreat. The knowledge which has come from the study of infectious disease has served also to broaden our conception of disease, it has linked more closely to medicine such sciences as zoology and botany, it has given birth to the sciences of bacteriology and protozoology and in a way has linked all sciences more closely together. Above all it has made medicine scientific, and never has knowledge obtained been more quickening and stimulating to its pursuit.

There are various kinds of living organisms which are capable of producing disease and the most important of these considering the number of diseases which they produce, and the great role which these diseases play in both man and animals, are the bacteria. These are simple cells of very elementary structure and having great power of growth. They vary greatly in size, shape and capacity for growth. The smallest of those producing disease is the influenza bacillus which is $1/50,000$ of an inch in length and $1/100,000$ of an inch in diameter, and among the largest is a bacillus producing an animal disease, which is $1/2000$ of an inch long and $1/2500$ of an inch in diameter. The rate of multiplication varies with the species and with the environment and under the best conditions it may be very rapid. A generation—that is the interval between division of a single organism into two—has been seen to take place in twenty minutes. At this rate of growth from a single cholera bacillus 16,000,000,000,000,000 would be formed in a day. Such growth, however, is extremely improbable under either natural or artificial conditions both from lack of food for the organisms and from the accumulation in the fluid in which they are growing of waste products which check growth.

From the simplicity of structure, it is not improbable that the bacteria are among the oldest forms of life and all life has become adapted to their presence. They are of universal distribution, they play such an important part in the inter-relations of living things that it is probable life could not continue without them; at least, not in the present way. They form important food for other unicellular organisms which are important links in the chain of living things; they are the agents of decomposition by which complex substances are reduced to elementary substances and made available for use; without them plant life would be impossible for it is by their instrumentality that material in the soil is so changed as to be available as plant food; by their action many of the important foods of man, often those especially delectable, are produced; they are constantly with us, on all the sur-

faces of the body; masses live on the intestinal surface, and the excrement is largely composed of bacteria. It has been said that life would be impossible without bacteria for the accumulation of the carcasses of all animals which have died would so encumber the earth as to prevent its use, but the folly of such speculation is shown by the fact that animals would not have been there without bacteria. It has been shown, however, that the presence of bacteria in the intestine of the higher animals is not essential for life. The coldest parts of the ocean are free from those forms which live in the intestines and fish and birds inhabiting these regions have been found free from bacteria; it has also been found possible to remove small animals from the mother by Caesarian section and to rear them for a few weeks on sterilized food, showing that digestion and nutrition may go without bacteria.

Considered in its biological relations infection is adaptation of an organism to the environment which the animal body offers. In certain cases the environmental adaptation is very narrow; for example, when an organism is parasitic for a certain animal species only, in others the adaptation may extend to a large number of genera. The bacteria may be adapted to an exclusively parasitic existence, or they may find conditions favorable for existence outside of the body as well. Infection can also be considered as a part of the struggle for existence between living things, organisms seeking to enter into and live upon the tissues of the body. The most favorable condition for the organism is when very little injury to the host is produced by its growth; the death of the host is an unfortunate incident in that the particular family branch of the parasite which is living harmoniously in the host may be cut off.

All of the surfaces of the body offer resistance to the invasion of the bacteria. There are natural areas of less efficient protection on the surfaces, on the skin, for instance, where the hairs emerge and the protection may be further impaired by slight injuries of the surface.

The chief danger from wounds is that their surfaces may become infected. Death from wounds is due more frequently to infection than to the actual injury represented by the wound. Much depends upon the character of the wound. Infection of clean wounds made by a sharp cutting instrument from which there is abundant hemorrhage with sealing of the edges of the wound by clotted blood rarely happens. Typical wounds of this sort are extremely common in shaving and infection of such wounds is extraordinarily rare. If with the wound pathogenic organisms are placed in the tissues, or foreign substances such as bits of clothing are carried in with a bullet, for example, or if the instrument causing the wound be of such a character as to produce extensive lacerations of tissue, infection is more apt to occur. The less frequency of infection in modern wars is in part due to the simpler character of the wounds and in part to the fact that modern fixed ammunition is practically free from germs. The old spear head, the arrow, the square-headed bolt, had little regard for the probabilities

of infection. Whether infection follows a wound depends both upon the entry of pathogenic organisms and upon these finding in the tissues suitable opportunities for growth. In the case of wounds in which there is much laceration of tissue organisms find the most favorable conditions for development. The very slight wounds produced by the exploded cap in the toy pistol give suitable conditions for the development of the bacillus, producing tetanus or lockjaw. The deaths of children from lockjaw following a Fourth of July celebration have often exceeded the total deaths in a South American revolution. The tetanus bacillus is a widely distributed organism, whose normal habitat is in the soil and which is usually present on the dirty hands of little boys. The toy pistol wounds are made by small bits of paper or metal being driven into the skin. The wound is of little moment, the surface becomes closed, and a bit of foreign substance, a few dead cells and the tetanus bacillus from the surface remain enclosed and in a few days the fatal disease develops.

The body has means of defense even when the invasion by bacteria has taken place. One method of defense is by what is termed phagocytosis, certain cells of the body having or acquiring the power of devouring bacteria. The bacteria may also be destroyed by becoming dissolved in the fluids of the body. The struggle between the body and the parasite may be likened to a combat in which each combatant has means both of offense and defense. The bacteria act by the production of poisonous substances which destroy or inhibit the activity of the cells and tissues, and the body produces substances which are antagonistic to the bacterial products. What are termed the symptoms of an infectious disease, the fever and the evidences of inflammation as shown in swelling and redness, are but the indications of the struggle which is taking place. The infectious diseases are preeminently those of the first half of life. The diseases of organs such as the heart, the kidneys and the liver are chiefly in the last half of life. These organic diseases have a close relation to the infections in that in the course of disease an injury to an organ may be produced which becomes operative not at once but later. We must not think that the parasites are the exclusive external causes of disease; any environmental condition to which the body cannot adapt itself and which in consequence produces injury is a cause of disease. It would seem at first sight that diseases produced by tumors, that malformations and that old age give examples of disease due not to external but to internal causes. Old age cannot in itself be regarded as a disease, for the alterations which we find in the body are those usual for that period of life of the species. In the case of malformations due to imperfections in embryonic development, the embryo developing within the uterus of the mother is not removed from the action of conditions external to it, and tumors cannot be considered as yet in relation to cause, for we know nothing concerning their cause.

The influence of the knowledge of disease has been far reaching. In every system of religion

which man has found time and inclination to formulate the power to combat disease, to heal the sick, has been a test of its efficiency. In the far past disease has generally been thought of as coming to us from beyond the domain of which we have knowledge, by sense impressions, and as due to conditions outside of the knowledge and control of man. The veil of mystery which enveloped it has been torn away; most diseases are recognized as due to conditions which are definitely within the control of man although there are inherent difficulties in the exercise of that control. Nor is this knowledge confined to the medical profession. The main facts of disease are becoming common knowledge and the interest of the people is aroused as never before; the daily newspapers devote a considerable part of their space to information concerning disease, which information is too often false and conveyed in a sensational manner. Many of the longer articles in the magazines on various diseases are admirable and are important means for the education of the people, and the modern novelist has also become conscious that there must be some control over the imagination in depicting diseases. The heroine no longer faints so frequently as she did in the early Victorian period, nor is a sudden reverse of fortune so apt to produce brain fever in the hero. The general recognition that disease like gravity and chemical attraction follows the operation of definite laws is gradually leading to a weakening of the belief in supernatural directing agencies.

It is not fully recognized how dependent our modern civilization is upon the control of disease. The essential principle in this is the substitution of mass action for individual action, resulting in the most minute division of labor. This has necessitated a vast increase in factory life and the factories being usually located in cities a swarming of people into the cities, the attraction being the more exciting and interesting life and fancied superior means of livelihood. Individual effort as opposed to the effort of mass with minute subdivision of labor has become progressively less efficient. The infectious diseases in the past would have made impossible the modern extension of the factory and the increased development of city life. Think what would happen in a factory the employees of which were unprotected against smallpox in which a single case of the disease were introduced.

Another great development has been the increase of communication among people. In the days preceding steam, isolation was the safeguard of the people. Wars were usually associated with and followed by epidemics, diseases being generalized in camps and disseminated along the paths of armies and by returning soldiers. Pilgrimages and any movement of the people contributed to disease. Epidemics had a fatality unknown now which was probably in part due to the fact that the isolated communities acquired no resistance to diseases which were foreign to them. In the days of sailing vessels voyages were so long that an epidemic of disease acquired at a port would exhaust itself on the voyage before the vessel reached another port. In the rapid steam communication diseases tend to lose endemic characteristics and to become gen-

eralized. There is a tendency not only to loss of individuality in nations as expressed by dress, customs, tradition and belief, but they lose their characteristic diseases and receive others in return. Only those endemic diseases which are transmitted by insects which have a strictly local habitat remain endemic although the region in which these diseases are endemic may become greatly extended. The most striking example of this is in the case of sleeping sickness which starting in a focus in Nigeria has extended along the routes of the rubber traffic throughout the entire Congo region and to East and South Africa, wherever the transmitting flies are found. The distribution of insect carriers of disease may also take place and is greatly to be feared; possibly it has taken place but time would be necessary for slow breeding insects to establish themselves. But in all cases with the knowledge of a danger some means of opposing it will be found. Not only has there been such a general dissemination of the diseases of man and animals, but the increase of communication has led to dissemination of the diseases of plants as well. Formerly, the plant species were restricted in their extent. The farmer for the main part saved and sowed his own seed and the garden plants did not travel far; there was a limited plant exchange in the immediate neighborhood and even the florist supplied a narrow area only. Now we levy on the world for our plants and seeds. Any plant desirable for beauty of foliage and flower which has developed in any part of the world and there established harmonious relations with the insect and plant life and adapted itself to the immediate parasites is distributed everywhere. In this way there have been introduced plant parasites, the most conspicuous examples being the brown tail and gypsy moths whose ravages in the Eastern states have produced damage extending into the millions and with which we have not yet learned to cope successfully. These two parasites are extending slowly, but surely, but with the extension there seems to be a slow adaptation of plant life to the new environment which they bring. It is not a wild thought that some human parasite may be introduced which in the new environment may find conditions so suitable for its existence that we will be as little able to cope with it as we have been with other new parasites. There have been many examples of the almost incredible power of multiplication of an animal or plant in a new environment where it is removed from the operation of conditions which held it in check, as for example, the introduction of the mongoose into Jamaica, the rabbit into Australia, the Scotch thistle into South Wales and the single water plant chara into England.

There has also been a change in the medical point of view, one effect of the change being the gradual elimination of medical sects. It is difficult to see how there can be a theory of disease with treatment based on that theory with any more reason than a theory of chemistry or of physics. There have been certain reactions to the modern scientific conception of disease. The movement has been so rapid that it has produced as rapid rivers will do,—back eddies along the banks. Such reactionary movements are

inevitable; individuals who mentally are scarcely at ease in a current moving slowly are stimulated to reaction when the current becomes more rapid and make efforts against it. Such movements may be productive of good; they force us to consider carefully our attitude; some become stronger in their faith, some are carried into the back eddies. The most marked of these reactionary movements is represented by Christian Science. This combines many elements of strength; it has a very definite faith, a book in which with slight grammatical changes from time to time the principles and rules of the faith are recorded, up to a short time ago a living prophetess whose large estate has finally emerged from the legal struggle between her son and the church trustees. It is a curious commentary of this remarkable age that it is a profitable enterprise to found a successful religion. The theory of Christian Science is a total negation of the principles of science for it admits of no doubts nor further investigation. Its organization is admirable, it has the advantage of the control of large funds and a publicity bureau which conducts an excellent daily paper which has a large circulation within and outside of the faith. It is difficult at the present time to say what influence this movement has exerted upon medicine; influence it must have had, for the faith based on certain theories of disease which ally it with sin is embraced by great numbers of people, otherwise intelligent. It is too soon for an accurate determination of its effect but some good may have come out of it. It has much strengthened the knowledge that diseases (with exceptions) are self-limited and tend to recovery; it has shown that many ills are not real, but imaginary and due to a faulty interpretation of impressions; that real ills are often capable of relief by the substitution of other impressions, or by modifying in various ways the conceptions of ills; finally, that pain may be influenced in a great many ways. Many persons are undoubtedly healthier and happier than they would be without the faith. It is also difficult to say how much harm it has done. Many lives and, sad to say, many of these were children, have been needlessly lost from infectious diseases and other conditions which scientific medicine would have relieved. The process of medical education of the laity has been somewhat checked and the finances of many physicians have been diminished. As an offset to the financial loss, the physicians should be grateful to a faith which has relieved them from attendance upon a number of incredibly tiresome people who sought relief from ills which were largely imaginary and the result of idleness. A new and in many respects a nobler conception of medicine has arisen. Formerly, medicine was almost exclusively a personal service rendered and paid for, and measures looking to the public relief and to the prevention of disease received scanty consideration. The few health officers that there were in the chief cities drew salaries and published statistics of health conditions based on mental impressions of population, of birth and deaths. Now the dominant idea in the medical profession is that of a wider service to the city, to the state, to the nation, to humanity, rather than

the service to the single individual. This is seen in the establishment of laboratories by boards of health in city and state in which the knowledge obtained by exact investigations can be made available in the service of the people; in the medical inspection of schools and factories; in the passing of laws directed against conditions which affect the public health; in the increased extension of hospitals. It must be remembered in connection with this that as a nation we are but following other nations, never leading, and our public health measures are far behind those of most of the European countries. Think how much is done by the medical profession as represented by the American Medical Association. As a profession medicine has never been one of the most lucrative, standing far behind the law in average income of its members; yet, it gives to the committee which has charge of public health, including public instructions, which we regard as an essential feature of this, \$29,000 yearly, and there can be no selfish or ulterior motives behind the gift for the diminution in disease which we believe it furthers is not to the financial benefit of the members. It would be as though lawyers should devote a similar sum of money to the simplifying of the law and the creation of measures by which justice might be furthered. The idea of public service also underlies the creation of special laboratories and institutes in which through research greater knowledge of disease may be obtained and made available. Let us sum up the record of recent achievement; it is a proud one. Human life has been lengthened, many more individuals reaching the age of middle life. This has been due to the control of the infectious diseases which are the diseases of early life. With this has come an increase in the earning capacity of the race. For certain of infectious diseases there has been discovered a definite cure by the use of which the period of disease is shortened and the mortality reduced; for others, means have been found of increasing the resistance of the individual and infection is prevented, others are resisted by diminishing the opportunities for infection, this by the recognition and isolation of cases in the early stages of disease. The researches which have been made on the nutrition of man and the nutritive values of foods are of great importance and have not yet begun to be applied as they should be. It will undoubtedly be possible to realize a great economy in this regard. The greatest demonstration of what it is possible to achieve in the way of prevention of disease has been given in the building of the Panama Canal. In what had formerly with right been regarded as the most unhealthy region of the earth, great numbers of people from different regions, all unacclimated, that is, with no hereditary or acquired adaptation to the local conditions, have been assembled, have been engaged in the most arduous work and the mortality returns show as low a death rate as in the most favorable countries. The record which Col. Gorgas has established by the application of the laws of prevention of disease must remain one of the proudest achievements of man.

THE MEDICAL TREATMENT OF GALL-BLADDER DISEASE.*

By DUDLEY FULTON, M. D., Los Angeles.

Diseases of the biliary tract are somewhat peculiar, in that the same lesion in one individual may be latent and harmless, and in another intensely active and full of danger. With such variegated clinical manifestations and prognostic possibilities, one is shorn of the inclination to offer dogmatic rules of treatment. Individualization is necessary and therapeutic decision can be made only after careful consideration of all factors bearing upon each case.

One of the first things to consider in discussing the treatment of gall-bladder disease is what conditions are medical and in what sort of cases is surgery indicated. While opinions still vary on some points as to the indications for medical or for surgical treatment, it is rather unusual, we believe, for the internist and the surgeon to disagree when considering any given case. It is conceded that certain phases of gall-bladder disease are distinctly surgical, such as acute suppurative cholecystitis, frequently recurring gall-stone colic, empyema of the gall bladder, common duct obstruction, carcinoma, and the pancreatic lesions that are secondary to biliary infections. In certain mild cases—and these are the most frequent clinical types—chronic cholecystitis without stones, pericholecystitis and gall stones that are pursuing a latent course, it is debatable if medical treatment does not offer as much to the patient as surgery. Nowhere do we find wider dispute as to surgical indications than among surgeons, some advocating that there is no other treatment than operative; others, notably Kehr, consider eighty per cent. of gall-bladder diseases as medical.

We have referred a goodly number of patients with mild chronic cholecystitis to the surgeon the past few years, with rather disappointing results; although brilliant results were often obtained, failures have been frequent enough to teach us increasing conservatism in the selection of surgical cases. Not infrequently the post-operative history has been but little happier than in patients who declined operation and have since been carried along by medical treatment.

In diseases of the upper abdomen that have both a medical and surgical side, particularly chronic duodenal ulcer and chronic gall-bladder disease, the surgeon is wont to attribute non-cures to the complications of delay. While this is unquestionably true, the same may be said with double force by the internist. Were all cases diagnosed early, it is probable that medical treatment of gall-bladder disease would arrest the inflammation and prevent sequelae.

The greatest deficiency that exists in clinical medicine and surgery to-day is in diagnosis. Because of this deficiency, many of the cases of gall-bladder disease which now come to us present the end results of infection which began years

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ago when these conditions were not recognized as frequently as to-day.

There is always a tendency for end results of any treatment to be measured by percentage of mortality, rather than by percentage of cure. The removal of gall stones does not cure gall-bladder disease, unless conditions favoring stasis and infection,—the factors that made gall stones possible—are at the same time overcome. Other failures are due to neglect of post-operative medical treatment. It is ordinarily the custom, after the surgical treatment of nephrolithiasis, to institute treatment to correct those disturbances of metabolism that produce this condition by dietetic measures, free water drinking, and controlling the reaction of the urine, to prevent its recurrence. It seems to us that frequently the same care is not given to the post-operative management of gall-bladder disease.

Diseases of the gall-bladder are of remarkable frequency,—probably only a small percentage of those affected ever have active symptoms. In the Mayo clinic, eight per cent. of women operated for other conditions had gall stones. Many patients after a period of activity subside into latency indefinitely. This would make it appear that latent gall-bladder disease is not a very serious affair and that in such instances a legitimate choice may be offered between medical and surgical treatment. Nothnagle, evidently inclined to this view, once remarked that gall stones belong neither to the physician nor to the surgeon, but to the patient. But, in admitting the foregoing, no internist should forget the potential danger in gall-bladder disease and that needless delay in advising surgery converts such treatment from safety and simplicity to one of complications and inexcusable mortality. There is no better rule to guide the physician than to refer to the surgeon all cases in which the symptoms are persistent or are frequently recurring in spite of medical treatment, for surgery is undoubtedly the most effective treatment of the end results of bile duct infections. Unfortunately, many cases are not cured even by surgical treatment because of the impossibility of controlling adhesions and other gross pathological lesions. Like in chronic appendicitis, the damage is already done and can not be fully rectified.

It would therefore seem that there is a distinct medical side to the therapy of gall-bladder disease and that Kehr was probably not far from the truth when he stated that surgical treatment is indicated in only two types of cases. First, those with "vital" indications, chronic obstruction of the common bile duct, acute and chronic empyema, perforation, and carcinoma. Second, those with "relative" indications, all those cases in which long continued symptoms or frequent attacks of colic have robbed the patient of enjoyment of life, or have endangered his ability to earn a living.

In discussing medical treatment it should be made clear at the outset that the object should be, not the dissolution of stones or the removal of adhesions or the expulsion of concretions from

the bile passages, for such attempts are futile. Indications point rather to the prevention and control of infection and stasis—the factors which make these gross lesions possible. These represent the end results of gall-bladder disease and when once formed all that can be expected of medical treatment is palliative. In the ability to reduce gall-bladder activity to latency, medical treatment accomplishes much, since this, as has already been pointed out, amounts practically to a cure in many cases.

Coming now to the prophylaxis and to the treatment of early gall-bladder disease, we find that these phases of the subject are purely medical. In the prevention of the involvement of the biliary tract in acute infections, no extended work from bacteriological standpoint has, so far as we know, been done. Some clinicians have directed attention to typhoid and colon bacillus infections of the gall-bladder, hoping thereby to prevent or cure the incipient infection of the mucosa before this becomes extensive enough to obstruct the cystic duct, formation of calculi, or the involvement of tissues beyond the mucosa. Engelbach, in his study of this phase of the question, emphasizes the frequency of cholecystitis during the course of typhoid fever and believes that this local infection of the gall-bladder is probably the most frequent cause that prolongs the disease more than three weeks and that otherwise modifies the clinical course of the disease. He cites a series of fourteen cases in which the usual signs of rigidity and tenderness in the gall-bladder region were present, and in which gall-bladder antiseptics and vaccines were used in cases which failed to terminate by lysis the third week. No attempt was made to draw any further lesson from his limited number of cases than a suggestion to stimulate similar work.

Biliary Antiseptics—Crowe's studies determined that hexamethylenamin, when administered in sufficiently large doses (at least seventy-five grains a day) appeared in the gall-bladder in a concentration sufficient to render bile an unsuitable media for the growth of bacteria. In some of the cases, in which the infecting organism was *B. typhosus*, it was possible to render the interior of the gall-bladder sterile so long as active therapy was continued. Quite recently Burnham has failed to corroborate Crowe's findings and doubts the value of the drug in biliary infections.

Of the numerous drugs employed as biliary antiseptics, we know of none that can be given in sufficient dosage to reach the gall-bladder in a concentration sufficient to be clinically effective. The medical treatment of infections of the biliary passages must be attempted by other measures. Whether or not immunizing serum will prove competent in keeping the bile passages sterile in acute general infections remains for the future to determine.

The extended use of proprietary gall-bladder remedies by the profession is a matter of regret and it is unfortunate that the medical treatment of gall-bladder disease is so frequently limited to the use of such nostrums. Members of the pro-

fession who prescribe such—the composition and pharmaceutical action of which they know nothing, except the gilded promises of the manufacturer—exhibit quite the same gullibility as do those weak members of the laity who, with more faith than reason, become converts to various forms of charlatanism.

Chologen, a representative of this class of gall-stone “cures” and which has been before the medical public the past few years, consists of three kinds of tablets: No. 1, calomel and padophyllin; No. 2, calomel, and No. 3, calomel padophyllin, camphor and menthol, none of which so far as is known have any specific action upon diseases of the biliary apparatus.

Bile Stasis—Naunyn, after a lifelong study of this subject, has recently called attention to the presence of micro-organisms, particularly the *Bacterium Coli*, in the duodenal portion of the common duct of healthy individuals. Naunyn calls this “normal bactericholia.” So long as the stream of bile suffers no obstruction to its passage, this organism remains harmless. Whenever stagnation occurs for a while, a dangerous accumulation of bacilli occurs and this leads to bacterial infection of the bile. It is not necessary that the bile stream should be completely interrupted; any degree of stagnation may be sufficient. Mayer also suggests the importance of stasis by the assertion that gall-stones usually produce no symptoms so long as there is normal flow of bile. The importance of the prevention of bile stasis becomes therefore an indication of importance and it would appear that medical treatment has one of its best weapons in the ability to favorably influence bile flow in gall-bladder diseases.

Of exceptional importance and influence upon the flow of bile is the action of the choledochoduodenal sphincter, that powerful constricting muscle in the pars intestinalis of the ductus choledochus. Thanks chiefly to the work of Pawlow; this sphincter is known to open only at definite times, chiefly during digestion; when closed it opposes a powerful obstruction to the bile so that the latter is forced to flow toward the place of less resistance—through the cystic duct into the gall-bladder. At the beginning of digestion, as soon as the sphincter is opened, the thickened bile from the gall-bladder mixes with the bile secreted by the liver and reaches the duodenum. Since in gall-bladder disease, the bile stagnates in the gall-bladder more than under normal conditions, it becomes more viscid and thick and is, therefore, hindered in its outflow during the periodic opening of the sphincter. One of the most important indications for medical treatment is, therefore, to promote its expulsion into the intestine.

Nothnagle years since made the assertion, based upon wide experience, that a full meal is the best cholagog. The explanation of the function of the choledochoduodenal sphincter justifies Nothnagle's clinical observation. The periodic opening of this sphincter is essential to the entry of bile into the intestine. The more frequently the tone of this muscle relaxes, the more the outflow of bile is rendered possible. When the stomach is empty, or

after it has discharged its contents completely, the outflow of bile into the intestines ceases. On this account in gall-bladder disease, it is advisable to allow as short pauses as possible in the passage of food into the duodenum. In other words, patients should be given food as often as possible. A heavy meal undoubtedly stimulates bile production more powerfully than smaller meals. Increased flow of bile, however, is the object of treatment rather than increased production of bile. Mayer, writing on this subject, recently stated that the ordering of frequent but small meals forms the first principal in the dietetic treatment of gall-bladder disease. The diet should be divided into at least five meals daily. All foods difficult of digestion and easily decomposed and lead to fermentation, should be strictly forbidden, and in all individual cases the diet must be adapted to the existing conditions of the stomach and intestines. This summarizes the whole question of the dietetic treatment. There is no special gall-bladder diet.

Other measures that promote the expulsion of bile from the gall-bladder and thus lessen stasis are the maintenance of normal intestinal peristalsis, the action of the abdominal walls and the pressure of the diaphragm upon the liver during inspiration, and exercise. The powerful influence of intestinal peristalsis which is communicated to the muscular apparatus of the biliary tract is suggested by the not infrequent occurrence of gall-stone colic following excessive purgation. It is important, therefore, to insure regular and normal intestinal peristalsis by dietetic measures and the use of mild laxatives. To its favorable influence upon intestinal peristalsis and to the removal of injurious products of digestion, combined with the dilution effect of free water drinking, is to be attributed the benefits obtained by the Carlsbad and similar treatments.

Those factors which exert an influence upon the respiratory action of the diaphragm and through it on the outflow of bile, such as deep breathing, physical exercise and the prohibition of badly fitting corsets, are of the greatest importance.

Cholagog—The cholagog principle of gall-bladder disease is one of the oldest efforts of treatment. Numerous agents have been used with the idea to increase the amount of bile. Were it possible by medical measures to increase the secretory functions of the liver, it is questionable if the resulting increase in the amount of bile would prove beneficial. In certain complications, such as chronic obstruction of the common duct, this would be positively dangerous. The point is usually overlooked that it is not that bile is formed in insufficient amount, but that the bile which is formed, stagnates, and it is to the latter that treatment should be directed. Furthermore, in view of the action of the common duct sphincter, it is doubtful whether cholagog agents could, by the formation of increased amount of bile, sufficiently raise the pressure in the bile passages to overcome the resistance of the sphincter. This normally opposes a resistance corresponding to a pressure of about 700 m.m. of water, while the normal secretion pressure is equal only to about 200 m. m. of

water. It seems, therefore, that the use of chologog agents even if effective would be irrational. It is, however, possible to produce a more easy outflow of bile into the intestine if we make the bile more fluid. The most effective means we have of accomplishing this is by drinking an abundance of water, especially upon an empty stomach. It should be taken as hot as possible, for cold liquids, especially in cholelithiasis, frequently induce attacks of colic, and because of the beneficial relaxing effect that heat exerts upon muscle spasm. Patients should drink one or two tumblers of hot water an hour before breakfast and a tumbler or two in the evening before retiring, and in small quantities frequently during the day.

While the control of stasis and infection are the logically defined indications in medical treatment according to the present limit of knowledge, it is probably far from the truth to conclude that they will ultimately be the only ones. Cholesterin metabolism, of which but little is definitely known; the influence of disturbances of the liver and of general metabolism upon fluctuations in the composition of bile; the various factors that control the excretion of bile, and the problems attending infections of the gall-bladder and immunity in acute infectious diseases are additional factors which, when worked out and put upon a clinical basis, may have a marked and perchance a revolutionary influence upon our conception of treatment.

Finally it should be said that perhaps in no other abdominal condition is complete rest more indicated than following acute manifestations of gall-bladder disease. Following acute cholecystitis and even after gall-stone colic, it is well to keep the patient in bed for several days after each attack, and after all inflammatory manifestations have passed off, and until no tenderness on pressure over the gall-bladder remains, a period which may extend from days to weeks, according to the severity of the case. By more careful insistence upon rest, chronicity of the disease may frequently be avoided.

THE TREATMENT OF TUBERCULOSIS WITH A SOLUBLE VACCINE—A PRELIMINARY REPORT.

By J. O. HIRSCHFELDER, M. D.

In the Journal of the American Medical Association of October 12, 1912, and April 5, 1913, a method of treatment of pneumococcus and of gonococcus infections with extracts of these microorganisms was described. Since these publications a comparatively large number of cases have been treated with equally favorable results. In addition similar favorable observations have been made with pancreatic extracts of the diplostreptococcus of Poynton and Payne and the viridans in acute endocarditis and in rheumatism. In staphylococcus infection similar results have been reported from the use of a pancreatic extract of that germ.

For about a year and a half experiments have been conducted in the hope of obtaining an extract of the endobody of the bacillus tuberculosis. Such

a substance was derived from the digestion of the bacillus with pepsine. The living bacillus was treated with acidulated pepsine at 38 degrees, the action of the ferment stopped with alkalie, and the solution filtered through a Pasteur filter. It was found that pancreatine did not work quite as satisfactorily.

The extract was repeatedly standardized upon tubercular guinea pigs, and after an absolutely reliable preparation had been made and the method perfected so that the dosage could be accurately determined, a number of cases of tuberculosis were treated. The results have been very encouraging, but the number of cases has been too small and the duration of the observation too short to permit more than this provisional announcement of the method for the present. In none of the cases treated were any unfavorable effects noted. Rapid improvement has been observed both subjectively and objectively, the X-ray plate showing the clearing up of the tubercular deposits in the lungs. Several cases with tubercular laryngeal ulcers have been observed, and in all of them rapid healing of the ulcers has been noted by the laryngologist. Bone tuberculosis of years' standing has been seen to improve, and the progress has been recorded by the radiograph.

275 Post St.

MEDICAL ENDOWMENT FOR THE UNIVERSITY OF CALIFORNIA.

President Wheeler announced at Commencement Day, May 14, 1913, the George Williams Hooper Medical endowment for Medical Research. This is the greatest single, private gift ever made in California for the service of mankind. The gift is from Mrs. George Williams Hooper in memory of her husband. It consists of a foundation for medical research in connection with the University of California, and under the charge and ownership of the Regents of the University. The gift is in the form of property worth considerably more than \$1,000,000, and will yield an income of \$50,000 a year at present. None of the income is to be used for building purposes.

The institution will have an advisory board. In this board will be Mr. Pritchitt, President of the Carnegie Foundation; Wm. H. Welch, Professor of Pathology in the Johns Hopkins Medical School; Benjamin Ide Wheeler, President of the University of California; Dr. H. C. Moffitt, Dean of the University of California Medical School; Mr. E. H. Connelly, representing the interests of Mrs. Hooper, and two other persons to be chosen.

Announcement was also made of gifts aggregating \$479,250 for a new hospital for the University of California Medical School. Work will begin on this building as soon as \$600,000 is raised. As soon as the hospital is finished, the teaching departments of the first two years, which are now located in Berkeley, will be moved to San Francisco, thus bringing all the medical teaching to that city.

WALLACE I. TERRY, Acting Dean.

WHY DOES CANCER ATTACK THE FACE.*

By ANSTRUTHER DAVIDSON, M. D., Los Angeles.

Cancerous affections of the face are generally grouped into two classes: the ordinary squamous celled form usually found on the lower lip, and the basal celled or superficial form which for the purpose of this discussion may all be classed under the general term rodent ulcer. As the various authorities differ considerably as to the relative importance of the pathological findings, I feel less hesitation in grouping them in this manner.

Why rodent ulcer should be more common on the face than anywhere else has long been a subject of discussion, and on the general causes most authorities are in accord, but no very rational explanation has been forthcoming as to why rodent ulcer attacks most frequently certain parts of the face. As I have a theory as regards this, I wish to try it out on my fellow members and have their opinion on the subject.

Irritation of any kind is the prime factor in the production of cancer on the skin or anywhere else. The liability of X-rays and chemicals of the hydrocarbon series to produce rodent ulcer is well known. In the valley of Kashmir the natives are liable to cancer of the abdominal wall on account of their wearing the Kangri basket next to the skin, as a means of attaining artificial warmth.

Exposure to the sun and elements, particularly the sun, is an undoubted cause; the majority of our cases here are found in those individuals engaged in out-of-door occupations. Unna used to consider seamen were liable to a particular form of facial cancer.

A few years ago I saw in one of the Chicago clinics a man with five rodent ulcers on the right side of his face. Such a markedly unilateral development naturally suggested a special cause. The man, now 60 years of age, had been all his life a locomotive engineer and the ulcers were probably wholly due to the exposure of the right side of his face to the elements, and the irritating products of the smoke from the coal consuming engine.

Of all external sources of irritation, probably the sun is the most potent. Here in California it seems to me the number of rodent ulcers seen are entirely out of the normal proportion to all other skin diseases. Our climate is somewhat different from most of the States in the Union, and some general diseases common elsewhere are rare with us. Acute straight bronchitis, for example, is almost unknown here.

In skin diseases at present statistics give no reliable data. In rodent ulcer this is particularly so, as so many of its subjects are recent immigrants to the state that proportional statistics give us no data that would show the influence of the sun in the production of cancer of the skin.

While we concede, then, that the sun's rays are the exciting cause of rodent ulcer, there are other and more important factors underlying, for while we are almost all equally exposed to the sun's rays,

but a comparatively small proportion suffer from cancer.

Here is a diagram on which I have marked the point of origin of the last 100 cases I have seen. Now draw a line across the nose at the junction of the lip and nose, and note that 94% are above that line. Then draw a line parallel thereto across the middle of the nose where the shadow of the ordinary hat ends, and 78% are above that line. Note then that the part of the face best protected from the sun is most subject to rodent ulcer; so that the solar irritation theory does not fully explain the peculiar distribution of cancer on the face.

Let us look on the subject from the other standpoint, the type of individual liable to cancer. As a general rule rodent ulcer is mostly found on individuals of a spare habit of body. Men of spare habit, though seemingly strong and wiry, are almost invariably the subject of some form of digestive disturbance, or subject to some disease that affects the metabolism of their food; they are all sufferers from mal-assimilation in some form or other. Of these mal-assimilants there are two well-marked types, the "rough neck" and the "atrophic skin." The "atrophic skin" presents a depigmented pale or bluish look and not infrequently closely resembles the skin that has been affected by leucoderma. This condition of the skin is most frequently associated with seborrhea of the scalp and thinning of the hair. Pathologically the whole skin is thinned and the subcutaneous fat reduced. In the "rough neck" type the man, once stout, has become thinner. The true skin, originally coarse, remains almost unaltered, but the subcutaneous fat has so diminished that the now overabundant covering in accommodating itself forms heavy folds and creases. You scarcely ever see rodent ulcer on the full bloomed and empurpled face, or on those with a comfortably lined circumference.

Of those rodent ulcers depicted in the diagram shown, 95% were in individuals of a spare type of body.

These general remarks simply lead up to the point I wish to emphasize in this discussion.

Look again at this diagram and observe that certain regions are very frequently affected, and some are almost exempt. The region of the beard even in these days of smooth faces is practically exempt, the cheeks except on the malar process nearly so. The upper eyelid is free. I have never seen cancer on the upper eyelid, while the lower of apparently the same texture is quite frequently attacked. That is a fact curious and pertinent. The rim of the ear is not infrequently affected, 6% of those seen by me were in this situation.

For this peculiar distribution a curious theory was put forward by Dr. Evans of London many years ago. He attributed the partiality of cancer for certain localities to the presence of abortive lachrymal glands upon the parts of the face corresponding to the sites in which these glands exist in the higher mammalia, sheep, deer, etc. These glands are highly differentiated glands of an acinous or glandular type, and fetal residues in man may probably exist. This theory is a more definite adaptation of the "embryonic rest" theory that has

* Paper read before Los Angeles County Medical Society, March 20, 1913.

been applied to cancer in general. The distribution of these lachrymal glands correspond quite closely to the distribution of rodent ulcer on the face.

My theory is that those regions are most subject to rodent ulcer that are least mobile, and consequently least vitally nourished. The growth of the beard or the use of the razor stimulates the functional activity of these parts. The cheeks are active in mastication; the upper lid does practically all the dusting of the eyeball. The cutaneous structures at the corner of the eye, the nose itself, the ears and malar prominences have no underlying muscles, no mobility, no stimulation to activity. If the abortive gland theory were correct both sexes ought to be equally affected, but according to my figures only 12% were found in women. This disparity between the sexes is to be accounted for in part by the greater care expended on the face by women. The copious use of facial creams, frequent massage, etc., maintain a greater vitality in the skin. Then, too, women are endowed with an extra layer of adipose that still further maintains the tonicity of the skin.

The more degenerate, or the less vital the structure, the more the liability to cancer. In the general atrophy of the skin incidental to old age, those places devoid of all subcutaneous mobility are most liable to rodent ulcer. That seems to me the most plausible explanation of the peculiar distribution of facial cancer.

EVOLUTION IN THE STUDY OF THE HEART: A SURVEY.*

By HARRY I. WIEL, M. D., San Francisco.

Privilege indeed it is to live in a renaissance period. When we stop to consider how for centuries medicine has stood ineffectual in the face of the morbid heart, groping here and there for light in the midst of darkest ignorance and unable to attain any efficiency in this field, it is a great satisfaction to know that our own times have finally opened up new paths to knowledge and treatment of chronic heart disease. Dealing with the history and evolution of this matter, tracing the various steps by which this decidedly advanced and new knowledge has been attained, has proved a study of great fascination to the writer and it may be that the readers of this sketch will experience like enthusiasm in following this evolution with him, from ancient days to now.

Concerning the earliest years there is little to note in the way of progress. The views of Hippocrates, Aristotle and Galen held sway for centuries. These recognized the heart, arteries and veins and included in the system we now know as circulatory, the liver. There were supposedly two bloods, the natural and vital, in two closed systems, the veins and arteries. The liver was regarded as the central organ of the venous system, in which chyle was converted into blood, and from which it was distributed by the veins to the various parts of the body for nourishment. The struc-

ture of the heart and the direction in which the blood passed was known, but the chief function of the organ resided in the left ventricle where the "vital spirit" was created, a mixture of inspired air and blood. By alternate dilatation and collapse of the arteries, this mixture was kept in constant motion. Allowance was made in this scheme for a small amount of blood going from the right side of the heart to the lungs for their sustenance, and thence back to the left side of the heart. There was, however, no conception at all definite of the pulmonary circulation as such; in fact the main communication between the two sides of the heart was supposed to be by means of pores between the meshes of the interventricular septum.

Such in outline was the accepted idea of the cardio-vascular system which prevailed for centuries. It remained for that extremely fascinating character in the history of medicine, Michael Servetus of Villanova, Spanish born, theologian and scientist of continental Europe, the valiant and splendid heretic, contemporary of Vesalius, to make the first enlightened contribution. Sir William Osler, in a masterly biographical sketch of the man, has brought together with inimitable excellence, our knowledge of Servetus, and this society is indebted to the Regius Professor of Medicine in Oxford, for a reprint of that portion of the fifth book of "*Christianissimi Restitutio*" which contains the important scientific work of Servetus.

In this theological work, Servetus, in a few paragraphs, gives the now noted description of the lesser circulation. These facts he most probably discovered from dissection in the anatomical laboratory, for there is no record of any such thing in this affair as observation from the living organism. To Servetus himself, and to his contemporaries, the matter seemed of little import, and as far as clearing our ignorance in the problem of the circulation, it surely was of little significance. Literature does not remark much stir in scientific circles following this discovery. A certain Colombo a few years later announced the same observations with the addition of noting that the blood became mixed with the inspired air in the lungs and not in the heart, but all these things caused no more commotion than the contribution of Servetus himself. The influence of Galenical teachings was still rampant, and Servetus's work was allowed to remain hidden until after the publication of the greater work of William Harvey, nearly 100 years later. Charles Bernard, a surgeon of St. Bartholomew's Hospital in London, called the attention of William Wotton in 1697 to the important work of Servetus which had so long lain obscure, and Wotton in turn gave it to the world with the emphasis it deserved.

Had the discovery of the lesser circulation been heralded, one might think that it paved the way for the epoch making investigations which were to come, but we are justified in saying that until the time of Harvey, scientific investigation of the heart and blood vessels was a blank. Outside of the counting of the pulse in the arteries as early as 1464 by one Cardinal Nicolaus Cusanus using a *Wasseruhr*, we have little or no record of observa-

* Read before the general meeting of the San Francisco County Medical Society, Jan. 14, 1913.

tions of value upon the cardio-vascular system in motion. Until the advent of Harvey the Galenic views that distole was the active part of the cardiac cycle, systole being merely a rebound, prevailed, and therefore it is more than remarkable genius that was shown in the discovery of the circulation. This achievement in 1628 is not only noteworthy in the facts elicited, but is of supreme interest from the point of view of the subject this paper is considering. Calling dissection the first step in the evolution of the study of the heart, Harvey was the first working in this field to use vivisection, and so gave us a new means of research in this domain.

We have noted how Harvey, with his path shrouded in the darkness of ignorance, lighted a beacon illuminating the way for all future investigations. His genius and the worth of his work have been given fulsome but well merited praise by the world and need no further comment. Still, to emphasize their value from the standpoint of our theme, we must again point out with stress that Harvey brought to cardiac science new means for investigation, first vivisection, and second injection methods, for it was by the latter that he demonstrated the capillaries.

Harvey having cleared up the matter of the circulation and having shown that the heart contracts in systole and relaxes in diastole, we look for the next definite progress in the study of the myriads of questions which would naturally arise. Before we come to that and mark it well, we are led into a bypath of tremendous interest, a line of thought which was the first result of Harvey's work. We refer to the famous and still continuing discussion on the neurogenic and myogenic theories of the heart beat. He might well be called the real formulator of the myogenic theory, i. e., that the heart beats because of certain properties inherent in the heart muscle itself, but in the same century Willis formulated the neurogenic theory. This latter investigator postulated that the organ beat because of impulse conveyed to it from the cerebellum via the vagus. Haller's publications in 1757 were important in that they enunciated the myogenic theory as it is largely held to-day, i. e., that inherent irritability of the cardiac musculature is responsible for the heart's contraction and this irritability is replenished by the constant inflow of venous blood. Legallois in 1812 formulated the second neurogenic theory, to the effect that the cardiac impulse originated in the spinal cord and entered the heart via the sympathetic nerve. Bichat in the middle of the last century held that a ganglionic system governed all the viscera, and Remak's discovery in 1844 of inherent ganglion cells in the heart, lent great strength to this theory. Bichat's views held forty years until Gaskell in 1881-1883 published his convincing and remarkable experiments on the hearts of the frog and tortoise, which showed certain inherent functions of the heart muscle and proved that the ganglia represented merely an inhibitory apparatus.

Temporarily, we must leave these theories as far as we have brought them. They hardly mark, until the time of Gaskell, the epochs we are at-

tempting to trace, and the arguments they brought forth were characterized for the most part by philosophizing rather than by advances in the methods of the study of the problem, and it is after all, with that, that we are at present most concerned.

To return to 1628, the date of Harvey's discovery, we search from there on for further disclosures in either facts or methods. We find nothing of tremendous importance until we come to Auenbrugger nearly a century later. True, Stephan Hales had introduced a sphygmoscope in 1683, but that represented a small matter in comparison with Auenbrugger bringing percussion into use in 1722. This was perfected by Corvisart in 1809, the Napoleonic physician, and since then we know many names in this connection, notably, Skoda, Wintrich, Friedrich and Gerhardt.

This brings us to Laennec and the year 1819, and the part he played in the study of the heart is indirectly almost as great as that of Harvey, but alas not so beneficial. His introduction of the stethoscope and the all important emphasis medicine has since placed upon it, have marked one of the most if not the most splendid mistake in medicine. The mystery of sound, and at the same time its fascination, turned the attention of the best thought of that and later periods to the sounds of the heart and their modifications as the be-all and end-all in the study of the heart and its diseases. A great school of admirable and artistic cardiac clinicians grew and thrived under this conception, the school of murmurs they might be aptly termed. By the aid of auscultation, much of the hitherto obscure physical dynamics of the organ came to light, the causation of the heart sounds themselves became clear, and murmurs assumed a lucid significance.

The unfortunate feature of these things, however, was that, though they did open up new avenues for the diagnosis of the diseased heart, these avenues were actually blind alleys; and though they did give us a view, they brought us into little closer contact. In fact the real trouble was that they gave us a view but no real acquaintance; they introduced us to the morbid anatomy and we became enabled to say that such and such a valve was insufficient or stenosed, but came hardly into more intimate acquaintance with the pathological physiology of the organ, which knowledge is so essential to the correct understanding and intelligent management of its diseases. Spurred on by these ideas flourished so many noted men—Broadbent, Gibson, Friedrich, Austin Flint, names selected at random but typifying the class of heart clinician now passing. These men left us with little greater efficiency than we had before their time and it remained for our own century still so young, finally to put the study of heart disease on a basis actually fruitful and giving golden promise for the future.

Properly to understand this indispensable work of the last quarter century, which has done more than all the work of the aeons before, to give us real knowledge, it is imperative to glance at the development of the recent anatomical and physiological researches of striking importance. Stannius, Gaskell and Englemann in the '80's showed that

the beat of the mammalian heart originates in the sinus venosus. Stanley Kent of Oxford in 1892 gave the first description, however imperfect, of the muscular connection between auricle and ventricle. His Jr. of Berlin in the next year gave a more perfect account of the same structure which has since borne his name, but Tawara, working under Aschoff in 1908 gave the most complete description we have and at the same time described the auricular-ventricular node which we know under his name and which shortly was to play such an interesting role in the explanation of certain cardiac rhythms. The year previous to this, Keith of the Royal College of Surgeons, London, working in collaboration with Flack, recognized at the junction of the superior vena cava and right auricle another node, the sino-auricular representing remnants of the primitive cardiac tube. This node was also destined to a part of importance, for it was here in the last two years that it was found that the normal rhythm of the heart receives its impulse, and this region was named by Lewis the pace-maker of the heart. As early as 1856 Kölliker and Müller had demonstrated a current of electricity in the organ by placing a nerve muscle preparation in contact with the beating heart, and Waller in 1889 studied these electrical conditions and recorded them accurately by means of photographing the movements of the mercury meniscus of a capillary electrometer. The climax of these studies found its expression in 1903 when Einthoven of Leyden brought the string galvanometer into practical use for these purposes and gave us the electrocardiograph. This instrument and method of investigation has proved not only efficient but indispensable in clearing up many obscurities, and without its aid the discovery of auricular fibrillation, the greatest recent single advance of all, would not have been accomplished.

This, however, brings us a little ahead of our story and before going further we must turn our attention to the modern master who made this progress possible. The comparatively small English manufacturing town of Burnley in the last decade of the last century contained as its leading practitioner James Mackenzie, a thorough going Scot passed middle life and of so endearing a personality that the inhabitants not only looked to him for their medical welfare but their moral and social as well. He himself has said that he knew his patients and their families so well, most of them of the working class, that he entered their houses as often through the back door and kitchen as by the front entrance. His practice, as he records it, numbered as many as 3,000 patients; in fact he was so adored in the town that every one there refused to die without first seeing Mackenzie. The character of the practice was general, in fact there are some enlightening neurological observations of his on record, made upon surgical cases. Picture a man so occupied with medical routine finding the time and having the mental capacity for epoch-making observations and publications in the midst of it all, and the marvel of it becomes overwhelming.

In 1893-4 he published his first papers on the

venous pulse, and these papers with the many that followed gave the impetus to the graphic method of the study of heart disease, which led to a field of knowledge of limitless extent, hitherto unexploited. True, Lancisi and Morgagni in the eighteenth century had made slight reference to the venous pulse and in 1794 Hunter had described it in the veins of the dog, but clinical thinkers had ascribed little moment to it, and it remained for the master mind of Mackenzie to realize what an important weapon the study and recording simultaneously of the venous and arterial pulses is in the clinical aspect of the heart. It was not the mere study of the pulses or the elaboration of a graphic method that actuated Mackenzie. The greatness of it lies in the newer and finer attitude he brought by these means to the study of the heart. Murmurs and heart sounds, though fascinating, helped us little in estimating cardiac possibilities for work under either normal or diseased conditions. Mackenzie gave us the conception of considering the organ from the standpoint of how much work it can do. To calculate this one must have actual knowledge of what the heart is doing and what it does under changed conditions. He found this knowledge could be attained through the graphic method, and so thrusting aside murmurs and valves for the time being, he turned his attention to the myocardium, and found that there lay the crux of the whole situation. In brief, it may be said that Mackenzie was the first to conceive that all dealings with the heart must be thought of and expressed in terms of the myocardium and its power for work, or to put it more clearly, he found that the pathological physiology of the heart contained the problems to be studied.

Working along those lines, he and those inspired by him attacked the arrhythmias. Until then an irregular heart was called an irregular heart and nothing further, but Mackenzie discovered that the arrhythmias are varied and protean in type. These different types had hitherto been effectually concealed, like a gopher in a hole, but Mackenzie smudged them out, and now we know the sinus or juvenile type, the paroxysmal tachycardia, auricular and ventricular, the extra-systole, the heart block, the bradycardias, the pulsus alternans, and other types. We are able to differentiate the serious ones from those of little import, and this only by the graphic method.

We now approach the extremely important discovery of auricular fibrillation, an outgrowth of Mackenzie's work. The pulse accompanying so-called decompensated cases of mitral disease, the "mitral pulse" had long been known and was early described by Marey, Riegel, Sommerbrodt and others. In later years Hering gave it the title "*pulsus irregularis perpetuus*," a most satisfactory and self-explanatory title. Mackenzie in taking records of these cases noted that the venous pulse showed a systolic movement and termed this the ventricular form of venous pulse. The pre-systolic or auricular movement being absent, he argued on negative evidence, that the auricle was paralyzed and the ventricle was assuming an irregular and independent rhythm. Later on he dis-

covered evidence that the auricle was in some sort of motion and so then he formulated his theory of "nodal rhythm." This held that if the auricle is beating but there is no separate auricular wave in the venous pulse, it must then be beating at the same time with the ventricle, and to do that it must be responding to impulses originating in the auricular-ventricular node. This idea prevailed for some years until Thomas Lewis, a pupil of Mackenzie of almost superhuman experimental ingenuity working in the University College, London, addressed himself to the subject.

In the course of experiments along other cardiac lines he noted, as others had, that electric stimulation of the auricles at a certain stage in the amount of stimulation used, caused them to enter a state of fibrillation and that during this fibrillation, the ventricles assumed a rhythm and gave a peripheral pulse record exactly similar to the "pulsus irregularis perpetuus" in man. The electrocardiograph being now at hand, it occurred to him to sew electrodes into the auricle, sew up the chest and take electrocardiograms of the animal in which auricular fibrillation could be produced at will. These electrocardiograms he compared with those of patients having the "mitral pulse" or "pulsus irregularis perpetuus," and found them identical. Mackenzie's idea of nodal rhythm had to give way to the proven fact of auricular fibrillation, and Mackenzie himself was the first to recognize and accept it.

The significance of this discovery was tremendous. Hirschfelder in Baltimore a little over a year previously had mentioned auricular fibrillation in connection with paroxysmal tachycardia but his ideas later were shown to be erroneous and he had not at all the conception of the true relationship of auricular fibrillation to clinical cases. Rothberger and Winterberg of Vienna one year before (1909) had hit upon the phenomenon independently, but they had not given it as elaborate experimentation and detailed complete proof, and the achievement will go down in medical history as Lewis's work.

This threw a new light on our previously termed "decompensated" hearts and for the first time in medical history we knew just what was happening in such cases. Naturally the first question presenting itself would be, how does that help us if at all? Is there any more we can do for these patients now than we could before, just because we know what their auricles were fibrillating? This very question occupied Mackenzie and particularly one co-worker, Cushny. They turned their attention to the therapeutics of this affection and soon found that an old drug, differently used than hitherto, namely digitalis, became an all powerful weapon. I say differently used, meaning used from the standpoint of the myocardium. Cushny, bearing the properties of the myocardium in mind discovered that digitalis had a selective action upon conductivity, delaying that function and thus slowing the ventricle by blocking many of the myriads of impulses arising in the fibrillating auricle. Infinitely better results than heretofore were obtained, by checking the use of the drug by the

graphic method in each individual case. This and related phenomena led Cushny and Mackenzie to study the drug anew and resulted in an infinitely clearer understanding and fuller knowledge of the use of what is probably the main therapeutic agent we have in heart disease. Their publications are extremely recent, the last but a little over a month back, but the detail of cardiac therapy lies without the scope of this paper and will be considered elsewhere at a later date.

It must not be inferred that it is the writer's idea that Mackenzie was the first to use the recording of the pulse in the study of the heart. Ludwig, in 1847, working in the physiological field composed the kymograph for the laboratory. Hering and Hurthle later improved on it and brought it to its present effective state as a physiological instrument. Ludwig studied the velocity of the blood by means of the *stromuhr* in 1867 but it was really Vierordt in 1855 who first applied the graphic method to the study of the pulse. Marey in 1860 devised the sphygmograph and a few years later Dudgeon gave us the improved and now familiar instrument. The physiological laboratories had for years recorded the pulse and heart motions by means of manometers, tambours and cannulae, but it remained for Mackenzie to correlate these methods and give them a working application in the clinical study of the human heart.

Another important and earlier outgrowth of the graphic method is seen in the clarification of our knowledge of the condition we learned by these means to know as heartblock. Clinically, paroxysmal bradycardia was known as far back as 1761 when Morgagni described a case of "epilepsy with slow pulse." The first clear clinical description fell to the lot of Robert Adams of Dublin in 1827 who published one case. William Stokes, a fellow Irishman, published clear accounts of 4 cases 20 years after, and it is from the names of these physicians that the title Stokes-Adams disease or syndrome is derived. The fact that in this condition, auricle and ventricle were beating at different rates was first noted by Galabin of Guy's Hospital in 1875, who came to this observation through means of auscultation. Eight years later Tigerstedt and also Woolridge were successful in experimentally dissociating auricle and ventricle but their experiments did great damage to the whole heart and had little more than historic value. His in 1895, 2 years after his description of the bundle announced his experimental accomplishment of heart block but he published no tracings or specimens. Four years after this he described, as well as Wenkebach, human cases of heart block but Chauveau in 1885 had already done so in a rather primitive manner. Mackenzie in the years 1902-5 published the records of several cases and advanced our knowledge of the recognition of this condition vastly, but it remained for Erlanger in Johns Hopkins University, in a series of experiments as ingenious as those of Lewis on auricular fibrillation, to disclose to the world all the obscurities which had hitherto been connected with the subject. It is now well known how by means of a specially devised clamp, he was able, by com-

pressing the His bundle to any degree wished, to produce all degrees of heart block, from the mere dropping of a ventricular systole, to complete block. He did not confine his studies to experimental work alone, but by studying human cases at the same time, he found it possible to draw convincing analogies and conclusions which later autopsies from all parts of the world amply verified. These cases were naturally studied by the graphic method, in fact the information would have been obtainable by no other method. It remained for the electrocardiograph, whose records are accuracy beyond question, to confirm the whole matter.

The discovery of heart block and the interdependence of the contraction of auricle and ventricle, upon muscular connection seemed at once to be the last word in the proof of the hyogenic theory of the heart, which discussion we had left at the time of Gaskell's work. Further light, probably in support and confirmation of this theory will be found in some startling experiments now going on in this country. We refer to the work of Carrel in the Rockefeller Institute and his "visceral organism" which opens possibilities for the observation of the heart beating apart from the influences of the central nervous system.

The appurtenances of the graphic method did not stop with the sphygmograph, the polygraph and the electrocardiograph. As is often the case, the method has been driven to extremes, and innumerable refinements, modifications, and new instruments sprang up on every side, some of them ingenious but most of them leading into unproductive by-paths. Many workers along these lines became befogged and mistook the means for the end. A large group of physicians seized eagerly upon the new toys and spent much labor collecting tracings, but little labor upon their interpretation. For such, the more complicated polygraphs which were furnished had an irresistible fascination, for in sooth these instruments would give simultaneous tracings of the venous pulse, arterial pulse, apex beat and blood pressure, and ingenuity is developing to such a degree that it would not have been surprising had some machine been invented to do all these things and in addition supply music for the patient's entertainment and tell his fortune. Nevertheless there were some inventions of interest and mayhap of promise, notably Moritz's Orthodiagraph and Frank's apparatus by means of which heart sounds could be graphically recorded.

Pausing now at the distance to which we have trudged in all these years and looking back at the beginnings, we must realize the tremendous revolution the last 20 years have wrought for us. Harvey took us by the hand and led us out of superstition. Laennec was the siren who lured us from the straight and narrow path and tempted us into the land of fascination but little accomplishment; but Mackenzie was the deliverer who led us from out of the wilderness into the light. It was he who taught us that such diagnoses as mitral incompetency or aortic stenosis said a little, not much and certainly not all in the case of a

heart suffering from chronic disease. It was he who conceived the idea that for us to be effective in the handling of diseased hearts, we must know what they are doing and can do, and he pointed out the means by which such knowledge is readily obtainable. Looking at heart disease from this point of view we can, as he emphasized in his Oliver Sharpey lectures of last year, get a rational basis on which to diagnose, prognose, and treat. His work, and all that followed under his inspiration, directly or indirectly, promises bright things for the future of our fight against heart failure, and even though we should not find the actual cures we hope for, we now at least have the satisfaction that we are approaching the problems rationally, and that after all is the most advanced aim for which we could wish.

Bibliography.

(The bibliography here submitted is not meant in any sense to be complete, but represents merely the main sources from which the material for this article, i. e., the historical material was obtained. Several of the references here given in themselves give complete bibliographies, notably the volume by Mackenzie and that by Lewis.)

- Cushny, Marris & Silberberg—Heart IV, No. 1, 1912.
- Barker—Bulletin of the Johns Hopkins Hospital, Dec., 1910.
- Oeuvres de Galien.
- Hirschfelder, A. D.—Diseases of the Heart and Aorta.
- Howell—Text Book of Physiology.
- Lewis—Mechanism of the Heart Beat.
- Mackenzie, James—British Medical Journal, 1911, Vol. I, pp. 793 and 853.
- Mackenzie, James—Diseases of the Heart.
- Neuburger and Pagel—Handbuch der Geschichte der Medizin.
- Osler, William—Bulletin of the Johns Hopkins Hospital, Jan., 1910.
- Schaeffer—Text Book of Physiology, Vol. II.
- Butler Building, San Francisco.

STEREO-ROENTGENOGRAPHY IN PULMONARY TUBERCULOSIS.*

A CLINICAL AND ANATOMICAL STUDY.

By WALTER W. BOARDMAN, M. D., San Francisco.

The question of the value of radiographic examination in the diagnosis of pulmonary tuberculosis is one which has called forth widely varying opinions. To investigate this question a complete stereo-roentgenographic apparatus was installed in the Phipps Dispensary of the Johns Hopkins Hospital and arrangements made for the study of a large series of cases, the radiographic findings being checked by careful clinical and when possible by autopsy examination, the work being carried on by Drs. Dunham, Wolman and myself.

As you may recall the X-ray is a form of radiant energy possessing the following important properties. The rays radiate in straight lines from their point of origin, they can neither be reflected nor refracted, they are capable of penetrating bodies opaque to ordinary light, in penetrating various materials the degree of absorption of the rays is directly proportional to the specific gravity of the materials, and finally the rays are capable of exciting photographic plates. We have, therefore, in the X-ray a means of recording differences of density occurring normally or abnormally in the tissues of the human body.

In a radiograph of the chest we have then a shadow picture in which the dense tissues or struc-

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tures appear as light areas, the less dense tissues or structures as darker areas. On the single radiographic plate of the chest we must of necessity have various shadows superimposed one upon another. This naturally increases the difficulty of careful study and exact interpretation of the individual shadows. In stereo-radiographs the chest may be seen in true perspective, the various shadows occupying the same relative position in the image as the structures which cast these shadows occupy in the chest.

This result is obtained by applying the principles of binocular vision, obtaining two radiographs corresponding to the right-eyed and left-eyed image respectively and viewing simultaneously, by means of the proper optical device, the right-eyed image with the right eye and the left-eyed image with the left eye. Various types of apparatus have been perfected for this work, the common principle in all being a movable plate holder and movable tube stand. With such an arrangement the patient is placed in position and the first exposure made. By some mechanical device an unexposed plate is quickly substituted for the exposed plate and simultaneously the X-ray tube is moved the necessary interpupillary distance and the second exposure made. This must all be accomplished without disturbance to the patient, and within the period of a sustained inspiration. For viewing the negatives some suitable stereoscope is used.

Examining a set of stereo-roentgenograms of a normal chest, one sees the shadow picture of the bony framework, with its covering of soft parts enclosing the chest except inferiorly, where the shadow of the diaphragm is apparent. The shadows within the chest seen in true perspective, may be divided into three main groups, the "heavy-central shadow" extending from the upper boundary of the chest cavity to the diaphragm; the "hilus shadow" radiating irregularly on either side of the center of the preceding shadow; and lastly, the finer markings in the lung fields.

The "heavy central shadow" is cast by the heart and pericardium, the aorta, the esophagus and the lymphatic and fibrous tissues of the mediastinum. The anatomical basis for the hilus shadow and the finer markings in the lung fields was still a fruitful subject for discussion, numerous investigators, Hickey, Holzkecht, De La Camp, Kienbock, Cowl, Rieder, Cummington and others, having expressed varying opinions based on more or less careful study. As Rieder had stated, although the matter was not definitely proven, the most generally accepted opinion was that the shadows in question were due in part to the blood vessels and in part to the bronchi. However, Fraenkel and Lorey in 1910 stated that "the anatomical substratum of the hilus shadow consists entirely of the blood vessel of the lungs and that under normal conditions the bronchial arborization gives no shadow on the Roentgen plate." Our investigations of this question fall into four divisions; the study of stereoscopic plates of normal and diseased lungs before death; the study of stereoscopic plates taken shortly after death, the radiographic

and autopsy findings being carefully compared; the study of stereoscopic plates of animal and human lungs in which the blood vessels and bronchi had been injected with bismuth emulsions or other shadow casting materials; and finally, the study of plates of animal and human lungs in which the different structures had been dissected.

The study of stereo-roentgenograms of normal and diseased lungs clearly demonstrated that the hilus shadows and the shadows in the lung fields are due to structures originating at the root of the lung and radiating toward the periphery, as demonstrated by De La Camp. These shadows could be divided into groups corresponding to the anatomical division of the lung into lobes, but we were unable to say whether they were due to pulmonary blood vessels or bronchi or both.

The autopsy work, although of considerable interest in some respects added nothing to our knowledge of the subject in hand.

The conclusions reached by injecting animal and human lungs were disappointing, since bismuth injections of the bronchi seemed to demonstrate the bronchial origin of the shadows, whereas similar injections of the blood vessels were equally convincing of the blood vessel origin of the shadows. When both blood vessels and bronchi were simultaneously injected the resulting shadows were too dense to allow of careful study.

Radiographs of pigs' lungs showed the bronchi as dark bands. Partial injections of such lungs showed the artery lying along one side of the bronchus—the vein along the other side. The lobules overlying the bronchus were separated and a section of the bronchus was removed and placed on another portion of the lung. The plates showed a definite shadow cast by the removed bronchus and also definite shadows cast by the artery and vein in the space from which the bronchus had been removed. These latter shadows were less dense than the shadows with which they were continuous above and below. In other words the arteries and veins cast shadows in X-ray plates of pigs' lungs, but normally their shadows are augmented by the shadow cast by the wall of the bronchus.

Bearing these results in mind a normal human lung was obtained shortly after death and inflated to its natural degree. The radiographs presented linear shadows radiating from the hilus toward the periphery. The lung tissue over one of these shadows was carefully separated until a vessel was exposed throughout its entire extent from hilus to periphery. A second set of plates showed that the position occupied by the vein was that of the structure casting the original shadow. The vein was carefully removed and placed in another position on the lung. The third set of plates showed a shadow undoubtedly cast by the removed vein and a shadow still persisting in the original position. In removing the vein an artery had been exposed, this was now removed and placed parallel to the vein. The fourth set of plates showed definite shadows cast by the removed artery and vein and a faint shadow in the original position correspond-

ing to the position of the bronchus, which was removed and placed parallel to the artery and vein. The fifth set of plates showed shadows cast by the removed artery, vein and bronchus and an absence of the linear shadow in the original location. The proximal end of the bronchus cast a very decided shadow. A section of the primary bronchus and of the large thick-walled pulmonary artery were placed side by side on another portion of the lung. The sixth set of plates showed a very definite shadow cast by the primary bronchus and a much less marked shadow cast by the walls of the pulmonary artery. Finally two vessels were exposed and a small quantity of citrated blood injected into them. These plates showed slight but definite increase in the density of the shadow beyond the tip of the syringe needles.

From the experiments we may conclude that the walls of the arteries, the walls of the veins and the walls of the bronchi cast shadows in radiograms of normal lungs removed from the body, and that these structures with their blood and accompanying fibrous and lymphatic tissues are collectively responsible for the shadows at the hilus and in the lung fields.

Referring again to a stereoroentgenogram of the normal chest, we now know that the hilus shadow is cast by the primary branches of the pulmonary vessels with their contained blood, by the walls of the primary bronchi and by the lymphatic and fibrous tissue surrounding them. Normally the hilus shadow is of moderate density, irregular outline and small extent, merging internally with the heavy central shadow. From the outer irregular border dense shadows (the so-called heavy trunks) radiate toward the periphery. The normal appearance of the hilus shadow will be altered by any process which alters the size, position or density of the tissues casting this shadow.

The shadows in the lung fields may be divided into two groups, the heavy trunks and the fine linear markings. The heavy trunks are shadow bands radiating from the hilus and cast by the large bronchi and blood vessels supplying the different lobes of the lung. Three such trunks can usually be recognized on the right side, two on the left. The trunks to the lower lobes are denser than those to the upper. The fine linear markings are seen to originate from the heavy trunks and to radiate in fairly straight lines toward the periphery dividing and subdividing like the branches of a tree. These shadows are cast by the smaller vessels and bronchi which radiate from the main branches supplying the separate lobes. With our present technic we are unable to trace them to the periphery of the lung fields since the density of the terminal vessels and bronchi under normal conditions is not sufficient to record itself on the X-ray plate. Any condition altering the size, shape or density of these structures will alter the shadows cast by them upon the radiographic plate.

Stereo-roentgenographs of early but definite pulmonary tuberculosis show changes in the hilus shadows, the heavy trunks and especially in the fine linear markings. The alterations in the hilus shadow usually consist of an increase in size and

density. Here and there scattered shadows of marked density are frequently noted, these resulting from involvement of the glands with or without calcification. The heavy trunks extending toward the involved area usually appear broader, denser and less regular in outline than in the normal. The fine linear markings in the involved area are also found to be broader, and less regular in outline. They are broken in continuity and spotted here and there with circular shadows. They also reach nearer the periphery than in the normal. As a result of these changes the markings instead of appearing as more or less straight linear shadows, seem to cross and interweave, producing a delicate meshwork. In the uninvolved areas of the lung the shadow picture is normal or but slightly altered. These changes, increase in the hilus shadow, increase in the shadow of the heavy trunks, together with the studding, the interweaving, the increase in density and breadth, the irregular outline and the extension of the linear markings to or near the periphery, constitute a stereo-radiographic picture which we believe to be characteristic of pulmonary tuberculosis.

With more advanced lesions the alterations become more marked and more readily recognized, the linear markings become more irregular and broken, the studdings larger and denser and the interweaving closer until eventually the whole area appears as a more or less homogeneous shadow due to the presence of gross areas of consolidation within the lung. The changes produced by the presence of cavities, pleurisy with effusion, etc., need not be considered at this time; nor shall I enter into the differential diagnosis stereo-radiographically of pulmonary tuberculosis and other pulmonary diseases, further than to state that such differentiation can be made at least in the vast majority of cases.

During the course of our investigation something over three hundred patients were examined, the clinical and stereo-radiographic findings being independently made and recorded. Then and not till then were the findings by the two methods compared. Only those patients examined clinically by Dr. S. J. Wolman are here considered. The series includes 92 cases. In the 92 cases there was disagreement in seven cases, in one disagreement was absolute, in six it was partial. The one case in question concerned a child of three years giving a positive tuberculin reaction but negative physical findings, the radiograph, however, discovered a small lesion in the left lung. The disagreement in the other six cases was concerned with the extent of the lesion rather than with its nature. Of the 85 cases in which the findings by the two methods agreed, 39 were clinically definite pulmonary tuberculosis, 6 of them being classed as fibroid. In all 39 cases the stereo-radiographic findings agreed with the clinical, and four of the number were classed as fibroid. Twenty-four cases gave definite physical signs and tuberculosis was suspected but could not be proven clinically; radiographically abnormalities corresponding to the region of the physical signs were noted, in twelve a diagnosis of tuberculosis was ventured, in the re-

maining twelve the radiographic diagnosis was "probably tuberculosis." Fourteen cases clinically diagnosed as normal were so reported radiographically. The remaining eight cases showed abnormalities in the lungs both clinically and radiographically, but were diagnosed as not tuberculosis by both methods.

In summing up the ninety-two cases here considered there was absolute disagreement in one case, partial disagreement in six and agreement in eighty-five cases. Of the eighty-five cases, thirty-nine were definitely tuberculosis, twenty-four probably tuberculosis, eight showed pulmonary involvement other than tuberculosis and fourteen cases were normal. On this showing it seems reasonable to conclude that the stereo-roentgenographic examination in the hands of a trained physician is capable of discovering pulmonary lesions and differentiating the tuberculous from the non-tuberculous as readily as the specialist by means of history, physical examination and tests. Therefore, there can be no question of the value of this method of examination to the specialist and especially to the general practitioner as an aid in the diagnosis of pulmonary conditions. However, it must be remembered that stereo-roentgenography is an *aid* and not a *means* of diagnosing pulmonary tuberculosis; the radiographic findings should in practice always be considered in conjunction with the clinical findings.

There yet remains a phase of the radiographic diagnosis of pulmonary tuberculosis to be considered. The alterations in the hilus, heavy trunks and fine linear markings just referred to are dependent upon morbid changes in the structures casting these shadows due to the local activity of the tubercle bacilli. Some authorities have attached diagnostic importance to certain alterations in the shadow of the heart, diaphragm and chest wall. Alterations in these structures, with the exception of the diaphragm, cannot depend upon the local activity of the infecting organism and must therefore be considered either as indicating a predisposition to the disease or as changes secondary to the disease. Of these conditions the "small pendulous heart" and the calcification of the rib cartilages have attracted most attention, others occasionally mentioned are narrow interspaces, contraction of one side of the thoracic wall, decrease in the angle made by the neck muscles with the clavicle, various abnormalities in the shape of the upper aperture of the chest cavity, alterations in the outline and height of the diaphragm, etc. In investigating these points 153 cases were examined in all of which the relative position of the plate, patient and X-ray tube was the same.

As a basis for comparison of individual cases or of groups of cases it is evident that the actual area of the cardiac shadow would be valueless as this must vary with the size, age, sex, etc., of the patient. In was, therefore, necessary to consider the size of the heart shadow in relation to the size of some other shadow, the original of which varies in the same way as does the heart with the size, age, sex, etc., of the patient. To this end the greatest transverse diameter of the heart shadow was compared with the greatest transverse diameter

of the chest shadow and the resulting ratio, which therefore expresses the size of the heart in relation to the size of the chest, was termed the cardio-thoracic index.

Table I.

Showing the influence of Sex upon the Cardio-Thoracic Index.

Sex	No. of Cases.	Cardio-Thoracic Index		
		Average.	Max.	Min.
Male	47	0.446	0.52	0.35
Female	33	0.430	0.50	0.37

Table I shows that in the cases examined the average cardio-thoracic index, independent of age or physical condition, was slightly greater in the males than in the females.

Table II.

Showing the Influence of Age upon the Cardio-Thoracic Index.

Age.	No. of Cases.	Cardio-Thoracic Index		
		Average.	Max.	Min.
0-5 years	3	0.456	0.47	0.39
5-15 years	11	0.446	0.50	0.41
15-30 years	45	0.450	0.50	0.37
30-40 years	15	0.443	0.52	0.39
40-50 years	4	0.42	0.52	0.40
50-60 years	2	0.42	0.45	0.40

Table II shows the cardio-thoracic index, independent of sex or physical condition, to be practically constant in the different age periods, with a slight tendency to decrease in later life.

Table III.

Showing the Influence of Pulmonary Tuberculosis upon the Cardio-Thoracic Index.

Stages of Disease	No. of Cases.	Cardio-Thoracic Index		
		Average.	Max.	Min.
Neg.	14	0.452	0.50	0.35
Doubt	16	0.440	0.48	0.39
1st Stage	6	0.435	0.46	0.41
2nd Stage A	14	0.437	0.50	0.37
2nd Stage B	13	0.449	0.48	0.40
3rd Stage	17	0.438	0.52	0.39

Table III is of special importance. As will be seen, the cases are divided into non-tuberculous, doubtful and tuberculous. The tuberculous are subdivided into four groups depending on the stage of the disease, first stage, early second stage, late second stage and third stage. Here the cardio-thoracic index is practically constant in the different groups, with, however, a slight tendency for the average to be smaller in the tuberculous than in the non-tuberculous and doubtful cases. However, one fact must be borne in mind, and this is, that the cardio-thoracic index varies between fairly wide limits in the individual cases, both normal and tuberculous, as is shown by the maximum and minimum indices given in the various tables.

Table IV.

Showing the Influence of Cardio-Vascular Disease Upon the Cardio-Thoracic Index.

Disease	No. of Cases.	Cardio-Thoracic Index		
		Average.	Max.	Min.
Myocarditis	5	0.564	0.59	0.54
Mitral Insufficiency	7	0.502	0.57	0.43
Aneurism	6	0.543	0.58	0.52

Table IV shows a high cardio-thoracic index in 18 cases with definite cardiac lesions. These cases naturally are not included in the previous tables.

We know that a small heart is common in individuals suffering from chronic wasting disease, such as tuberculosis, carcinoma, etc. Here the small heart is merely an expression of the general wasting and is not characteristic of any special disease noma of the esophagus, the radiograph taken just process. Thus in one of our cases, dead of carcinoma before the autopsy showed a cardio-thoracic index of 0.37. However, in our third-stage cases (Table III) which were all ambulatory, the average cardio-thoracic index was 0.438 with the maximum 0.52 and a minimum of 0.39. Evidently, then, the small heart is far from constant even in third-stage cases. Now as the value of the radiographic examination must depend upon one's ability to discover disease processes at a time when the clinician is still doubtful, or anxious for confirmation of his findings, it is useless to attempt to base a diagnosis upon changes which are neither constant nor characteristic, even in the late stage of the disease.

From the preceding we may safely conclude that the average cardio-thoracic index is practically constant in the different age periods, that it is slightly smaller in females than in males, and that in the tuberculous, although on the average it shows a very slight tendency to be somewhat smaller than in the non-tuberculous, this average tendency is so slight and varies so widely in the individual cases, that it cannot be considered a sign of any value in the radiographic diagnosis of pulmonary tuberculosis.

Regarding the occurrence and diagnostic value of calcification of the rib cartilages, two theories have been advanced. The one that calcification, by interfering with the free movement of the thoracic walls, renders proper aeration of the apices impossible and therefore acts as a strong predisposing factor to pulmonary tuberculosis, the other that the calcification is secondary to the pulmonary disease and depends upon altered metabolic processes. In Tables V-VII, the results of the investigation of 153 cases are tabulated. Cases showing complete calcification of the first cartilage, with or without calcification of other cartilages, are designated positive. Cases showing partial calcification of the first cartilage, with or without partial calcification of the other cartilages, are designated slight.

Table V.

Showing the Influence of Sex upon the Calcification of the Rib Cartilages.

Sex.	No. of Cases.	Calcification.		
		% +	% Slight.	% —
Male	85	30	22	48
Female	68	17	17	66

Table V shows that calcification was more common in the male cases, independent of age and physical condition.

Table VI.

Showing the Influence of Age upon the Calcification of the Rib Cartilages.

Age.	No. of Cases.	Calcification.		
		% +	% Slight.	% —
0—5 years	6	0	0	100
5—15 years	20	0	0	100
15—30 years	78	19	17	64
30—40 years	39	33	33	34
40—50 years	9	40	47	13
50—60 years	9	68	32	0
60—70 years	2	50	50	0

Table VI shows that calcification ran parallel with the age.

Table VII.

Showing the Influence of Pulmonary Tuberculosis upon Calcification of the Rib Cartilages.

Stage of Disease.	No. of Cases.	Calcification.		
		% +	% Slight.	% —
Neg.	37	36	28	36
Doubt	35	10	27	63
I Stage	9	0	10	90
II Stage A	37	19	22	59
II Stage B	16	22	7	71
III Stage	19	46	5	54

Table VII shows that calcification was present in a large percentage of the non-tuberculous cases. It also shows that calcification was absent in the first stage of the disease and increased in frequency with advance in the disease; however, only in the third stage cases did the percentage of positive cases exceed that found in the non-tuberculous cases. It might be mentioned that the patients comprising the third-stage group were slightly older than those comprising the non-tuberculous group.

From these tables we may conclude that calcification of the rib cartilages, especially the first, is more common in males than in females, that it increases in frequency with advancing years, and finally, that its incidence in pulmonary tuberculosis is only accidental or a late secondary change, and that its occurrence is of no diagnostic significance whatever in the individual case.

Table VIII.

Showing the Absence of any Relation Between the Width of the 2d Interspace and Pulmonary Tuberculosis.

Disease.	No. of Cases.	Width of 2d Interspace.		
		Average.	Max.	Min.
Neg.	36	3.0 cm.	4.4 cm.	1.5 cm.
Doubt	35	2.7 cm.	4.0 cm.	1.8 cm.
I Stage	9	2.9 cm.	3.8 cm.	2.2 cm.
II Stage A	37	2.9 cm.	4.5 cm.	2.0 cm.
II Stage B	16	3.3 cm.	4.0 cm.	2.5 cm.
III Stage	20	2.8 cm.	4.0 cm.	1.8 cm.

Another sign to which attention is sometimes called is the presence of narrow interspaces in individuals suffering from pulmonary tuberculosis. The width of the 2d interspace in the left mid-clavicular line was measured and the results recorded (in Table VIII). From this it is seen that no apparent relation exists between the width

of this interspace and the presence of pulmonary infection. Whether we may take the width of the 2d interspace as a basis for comparison is, however, open to argument.

Table IX.

Showing the Absence of any Relation Between the Angle of the 6th Rib and Pulmonary Tuberculosis.

Stages of Disease.	No. of Cases.	Angle of the 6th Rib.		
		Average.	Max.	Min.
Neg.	36	100°	104	85
Doubt	35	97°	103	99
I Stage	9	101°	105	97
II Stage A	37	99°	104	97
II Stage B	16	100°	103	80
III Stage	22	97°	109	85

No very absolute measurements could be made of the angle of the ribs, but in Table IX we have recorded the average angle made by the spine and the sixth rib on the left side. Apparently no relation exists between this angle and pulmonary tuberculosis.

The position in which our cases were radiographed made it impossible to study the shape of the upper aperture and alterations in the angles of the neck muscles.

No definite conclusions were reached from our study of the height of the diaphragm, since the average height was about the same in the tuberculous and non-tuberculous cases and the variation in individual cases was very great. There are, however, several interesting features about the diaphragm shadow, especially the occurrence of irregularities, which are worthy of more extended consideration.

In conclusion, I believe I am justified in saying:

1. That the small pendulous heart, calcified cartilages, narrow interspaces, and excessive sloping of the ribs, are not only valueless, but are absolutely misleading, if considered as positive signs in the radiographic diagnosis of pulmonary tuberculosis.

2. That the hilus shadows and the fine markings in the lung fields are composite shadows cast by the bronchi, by the blood vessels with their contained blood, and by the fibrous and lymphatic tissues accompanying these structures.

3. That pulmonary tuberculosis produces alterations in these shadows as seen in stereo-roentgenographs which we believe to be characteristic of this disease.

4. And finally, that there can be no doubt of the great value of stereo-roentgenography as an aid in the diagnosis of pulmonary tuberculosis and other pulmonary affections when considered in connection with the history and physical examination.

Discussion.

Dr. Rene Bine: I wish first to congratulate Dr. Boardman upon the excellence of his work. I think the members of the Academy should be ashamed of themselves not to turn out to a larger extent and learn something on this subject, which is more or less new to most of us in the community. I was much impressed with Dr. Boardman's statement that the experts at the Phipps

Institute found that the signs obtained on physical examination agreed pretty thoroughly with the X-ray findings. I think the X-ray has been of great value to most of us, and has proven a great stimulus to the average practitioner to do very accurate work in physical diagnosis because of his being frequently checked up by the X-ray. These pictures are certainly beautiful, and I think that we should give them greater study than is possible at this demonstration. I should like to ask what is the expense of this method as compared with the old.

Dr. Addis: I should like to hear Dr. Boardman's experience in comparing the findings of averagely skilful physical examination with the results of X-ray examination. It has seemed to me that in the hands of those who have not had a very large experience in physical examination, or who have not made a very special study of it, the tendency is rather to exaggerate the importance of slight variations in the quality of percussion resonance and breath sounds than to miss any signs really indicative of anatomical changes, and that thus one of the most important benefits for the ordinary man of X-ray examination of the chest is not so much to show him what he has missed as to let him see how much he has found which does not exist at all.

Dr. Spaulding: I wish to ask Dr. Boardman if there would be any improvement in the study of deformities of the pelvis by this means. The X-ray has been proven worthless in this work, even after marking with pieces of metal.

Dr. Boardman: In reply to Dr. Bine's question regarding expense, I may say that two plates are necessary by this method, but frequently two or more plates are required by the old method—so the expense is practically the same.

Regarding Dr. Addis's question, I believe that the X-ray usually discovers more disease than the clinical examination would lead one to expect, even with the most expert examination.

Replying to Dr. Spaulding's question regarding the measurement of the pelvis by means of stereo-roentgenography, this method has proven satisfactory. A report of the method may be found in the American Quarterly of Roentgenography, April, 1911, by W. F. Manges of Philadelphia.

TWO CASES OF CEREBELLAR DISEASE FOLLOWED BY AUTOPSY.*

By WALTER F. SCHALLER, M. D., San Francisco.

I wish to present the history of two cases of cerebellar disease, both of which came to autopsy. They represent two different types in their symptomatology: one was of sudden onset with no tendency towards a progressive course and with no evidence of intracranial pressure, while the other came on slowly and progressively with marked signs of intracranial pressure. In these two cases I wish to lay special stress on the analysis of the character of the ataxia.

Case 1, a boy aged 4½ years, was brought to the Stanford clinic complaining of difficulty in walking, of dizziness, of suddenly falling to the ground without loss of consciousness and of headache. First entering the children's clinic he was referred to the neurological clinic. About three months previously he had a fall from a height of 6 feet, striking on his head. This was followed by a nosebleed and some fever. The mother believed that the trouble, which had become progressively worse up to the present time, dated from this fall. Nothing of importance was brought out in the family history or the past history.

* Read before the San Francisco County Medical Society.

The examination showed an average sized boy for his age, fairly well developed and nourished. The speech was definitely scanning in character. The child laughed rather easily and there was at times the suggestion of Zwangslachen. The mother stated that the child had been of rather serious nature prior to his illness and believed that she noticed a change in this respect. It was noticed that the child tired easily at play and the mother said that she believed that he did not see so well as formerly. The walk was staggering in character and Romberg's symptom was present. Tests for ataxia in the upper extremity such as the finger-nose test were performed with moderate precision; in fact voluntary movements were relatively little affected as compared with the movements of equilibration. This was observed throughout the course of the disease. The tendinous reflexes were rather lively especially in the lower extremities. There was no clonus and the plantar reflex was in flexion. No disturbance of the sensibility was found. The pupils reacted to light and accommodation, the eye movements were normal and nystagmus was not noted. The corneal reflex was diminished on both sides. A fundus examination showed choked discs in both eyes. An examination of the remaining cranial nerves presented nothing abnormal. A radiograph of the skull showed nothing abnormal, the outlines in the occiput being very clearly seen. In the differential leukocyte count there was an eosinophilia of 8%. An examination of the stool showed no parasites or ova. The urine was normal. The Wassermann reaction was negative in the blood and in the spinal fluid. The spinal fluid was under considerable pressure but an analysis showed a normal content. The Moro tuberculin reaction was negative. Galvanic vertigo was found to be present as in the normal subject.

The following tests, proposed by Babinski for disturbed cerebellar function were applied and found present except as noted:

Movements démesurés. If the walk be analyzed it will be seen that exaggerated movements of the lower extremities are a factor in the production of the unsteady gait. Individual movements are well oriented and the sight does not influence the movement. This was shown in the Romberg test.

Asynergia. If, in the sitting position, the foot be raised to touch the hand of the examiner held at some distance above the floor, the thigh will first be flexed to the required height and then only will the leg be extended to complete the desired movement. There is then a dissociation between the movements of extension and flexion.

Cataleptic cérébelleuse. In the reclining position the legs could be held quite steadily raised above the body—this in marked contrast to the great ataxia on attempting to walk. True cataleptic as described by Babinski and as shown in my other case was not present.

Adiadokokinesis. The difficulty in getting the child to perform the movements necessary for the carrying out of this test did not enable us to determine definitely as to the presence of adiadokokinesis.

Pointing tests of Barany. These tests were gone over by Dr. H. B. Graham in the ear clinic. They were found to be normal. The cochlea and vestibular apparatus were intact. Dr. Graham found a spontaneous rotary intermittent nystagmus present on this examination, which I was not able to find on subsequent examinations. From the results of these tests Dr. Graham expressed the opinion that the condition was one of cerebellar tumor not cortical in origin.

It was noted that the child had a tendency to hold the head inclined forward on the chest. A sudden passive motion of the head did not appear to be followed by an unpleasant sensation. It was not noticed that when the child fell that it was more often in any one direction.

We considered the diagnosis in this case to lie

between a serous meningitis with pressure symptoms and a cerebellar growth. In order to exclude the possibility of the former condition it was decided to perform the operation of Anton of Halle—draining the ventricular cavities in the subdural space by puncturing the corpus callosum. This was accordingly done by Dr. Sol Hyman on June 5. After the first effects of the operation had passed there was marked improvement subjectively and objectively. The headaches disappeared, the child was brighter, the walk improved somewhat and the choked discs cleared up so that the margins of the discs could be clearly outlined. The trouble in locomotion was always marked, however, and was relatively little improved compared with the other symptoms.

The improvement noted was but temporary and on the 10th of August on account of a recurrence of the symptoms a diagnosis of cerebellar tumor was made and an operation to uncover the cerebellum was performed. This was to be done in two stages but the child died of shock following the first stage or the stage of decompression.

At the autopsy the cerebellum was found crowded down against the foramen magnum so that both tonsils of the cerebellum were pushed through it causing a deep groove on their surface. These markings are still plainly seen. Literally pressure grooves are also seen caused perhaps by the pressure of the sigmoid sinus. There was no projecting tumor mass on the surface of the cerebellum but it was noted that the region of the superior vermis was of a different color than the adjoining hemispheres, being of a much lighter color with an absence of definite markings. Section of the cerebellum showed a tumor mass—glioma—5-6 cm. in diameter with a cystic center which contained fluid under considerable pressure. The tumor mass involved the vermis and the white matter of the hemispheres adjoining including the dentate nuclei of both sides and extending into the central white matter of both superior peduncles. The superior worm was destroyed as was the inferior worm for the most part, only the inferior surface of the pyramid, uvula and the nodulus being intact. From the location of the growth and from its relation to the dentate nucleus the nuclei of the roof were unquestionably involved. Although the tumor mass approached the surface of the hemispheres to within 1 cm. of the surface posteriorly the striking part of the specimen is the conservation of the cerebellar cortex. This becomes of importance in referring back to the pointing tests of Barany which were not found to be abnormal; and the almost total destruction of the vermis is interesting in the light of the great disturbance of the function of equilibration and the relative conservation of the power of voluntary motor regulation as shown in the absence of any great ataxia in the finger nose tests.

The foramen of Megendie was patent and no basal meningitis or appendicitis was present.

Case 2. I will briefly present the second case history, laying special stress on the symptoms referable to the cerebellum. An intelligent man, aged 58, an inmate of the Relief Home, whose family history and past history present nothing of importance bearing on his condition, gave the following account of his illness:

In December, 1909, in Japan while sitting in front of a tea house in Yokohama he was suddenly seized with a sensation as if struck in the knees by a ball of lightning as he expressed it. He did not lose consciousness, was not dizzy and was able to walk a short distance unaided. He was put to bed and remained there a few days. Immediately following this stroke the trouble of which he now complains developed and has remained about the same in the three years which have elapsed. This trouble is chiefly the difficulty in controlling the movements of the left arm and leg, although the members on the right side of the body are also

affected to a lesser extent. Walking, or even standing, unsupported is impossible. He can feed himself but it is hard work. He has noticed that the character of the speech has changed, having become slow and deliberate, but there is no difficulty in articulation. The desire to urinate is imperative. He states that his memory has not suffered and that his mind is as clear as formerly. He has never had headaches or pain of any sort and he has not noticed that his strength has failed to any great extent. Vision for distance is good.

The status taken in December, 1911, showed a fairly well nourished man presenting a great incoordination of voluntary movements. To walk was impossible. Movements of the right upper extremity showed a moderate ataxia while coordinate movements of the left upper extremity were practically impossible. As it appeared to us that the type of ataxia was cerebellar in character special attention was paid to its study.

Movements *démesurés*. These movements were marked, in this case being evidenced by typical dysmetrie described by Thomas and Jumenté. When the patient attempted to place the finger on the tip of the nose the finger missed the mark by a wide margin, the movement being, nevertheless, well oriented and the error was of the same degree with or without the aid of the sight. In these two characteristics the ataxia was in marked contrast to the ataxia commonly seen in tabes.

Asynergia. This was present in the left lower extremity.

Catalepsie *cérébelleuse*. This was present in a very striking degree. In the reclining position the legs could be held elevated above the trunk quite motionless without a sign of the ataxia to be expected. Not only was there an absence of any oscillation but the members could retain this position for long periods without the usual fatigue constantly present in the normal subject.

Adiadokokinesis. This was marked in the left upper extremity. Successive pronation and supination of the left hand was impossible; in attempting this wide excursions of the forearm were made.

Pointing tests of Barany. There were no spontaneous errors in pointing. Pointing tests after turning by means of the rotary stool were not made. Among the signs of cerebellar disease was the scanning speech. This was a very prominent symptom in this case. There was, however, no difficulty in articulation. Voltaic vertigo was tested for. An interrupted current of from 14-16 m. a. was necessary to produce an inclination of the head, but it was always to the side of the positive pole.

It was not noticed that this patient had a tendency to fall particularly to one side when he lost his equilibrium nor was hypotonia present to any marked degree.

Reflexes: The radial, triceps, patellar and achilles reflexes were present on both sides and quite lively. The reflexes on the left side were found to be increased over those on the right. The plantar reflex was in flexion. The abdominal and cremasteric reflexes could not be elicited but the anal reflex was present.

The superficial sensibility was not affected and the stereognostic sense showed no impairment.

An examination of the cranial nerves showed very little. The pupils were equal in size and reacted to light, accommodation and convergence. The movements of the eyes were normal but it seemed to be an effort for the patient to look upwards and he complained of a pain in the back of the neck in attempting this movement. The fields of vision were apparently normal when tested roughly and there was no spontaneous nystagmus. The corneal reflex was perhaps a trifle diminished but distinctly present. The facial nerves were not involved. Hearing was diminished on both sides so that the ticking of a watch could only be heard in contact with the ear. There was no involvement of the 9, 10, 11 or 12 pair of cranial nerves.

On account of the history of sudden onset, the nature of the ataxia, and its prominence on the left side a diagnosis of a lesion of the left cerebellar hemisphere, vascular in origin was made.

The patient died suddenly on February 15, apparently from a stroke of apoplexy. At the autopsy when the brain was removed no tumor mass, thickening of membranes or adhesions were found, but it was noted that the left cerebellar hemisphere appeared smaller than the right and the corresponding posterior fossa of the skull was shallower than on the right side.

There was a marked arterio-sclerosis of the vessels at the base of the brain. The brain was hardened in formalin and afterwards placed in Muller's fluid. Sections showed two symmetrical areas of softening in the central white matter of both cerebellar hemispheres. The softening on the right side appeared recent. Another area of softening was found a little farther forward on the left side in external relation to the left superior peduncle. In hardening it will be seen that the inferior and superior peduncle on the left side have not taken on the brown color as on the opposite side. It would be premature to state positively before stained sections are made that these peduncles are degenerated but the gross specimen seems to indicate it. There was no evident lesion in any other portion of the brain.

In comparing the ataxia in these two cases it will be noted that the ataxia was far greater in this second case whereas the lesion was much less extensive. The question arises in this connection as to the result of slow or sudden destruction of cerebellar substance. In the case of sudden destruction as in softening it is possible that the co-ordinating function be permanently lost, while in the slower process the higher centers such as the cerebral hemispheres may assume this function by a process of reeducation.

Another question* is whether death by apoplexy may be caused by a lesion limited to the cerebellum. In the last case a complete autopsy was not performed so this point can not be settled in this particular case. In a case of chronic cerebro spinal meningitis observed recently, however, in which a complete autopsy was done the only lesion of sufficient importance to account for the sudden and unexpected death was a large area of softening in the roof of the 4 ventricle. This patient showed marked improvement in the meningeal symptoms prior to his death.

FACTORS IN THE PHYSIOLOGY OF BONE IN RELATION TO SURGERY.*

By ARTHUR L. FISHER, M. D., San Francisco.

My reason for presenting this paper at this time, is that it seemed to me from the discussions following Dr. Sherman's paper at the last

* Since the reading of this paper an article by Bernstein, "Kleinhirnblutung als Ursache plotzlichen Todes" (Deu. militärarzt. Ztschr. No. 22, 1912. Abstracted in Deu. Med. Wochen. Dec. 12, 1912, p. 2379), dealing with this question has come to the notice of the author. A case is reported of death following a hemorrhage into one cerebellar hemisphere. Bernstein states that to his knowledge such a lesion has never been mentioned as a cause of death before, and he offers as an explanation secondary vascular disturbances in the nearby vessels of the medulla. This explanation would hardly be applicable to cases of softening. It seems to us more probable that in our cases where the lesion extended to both hemispheres the cause of death may be sought for in the loss of the co-ordinating function. In the case of cerebro-spinal meningitis mentioned above, bulbar paralysis appeared to be the direct cause of death.

* Read before the Surgical Section of the San Francisco County Medical Society, September 17th, 1912.

meeting of this section, that there was not a very definite understanding among those who are operating on bone as to what happens or may happen after the operation. To say that a nail or a screw will remain firm, or will get loose, or come out, without enumerating the surrounding conditions, does not indicate either a clear understanding of the subject or a disposition to credit the word of other men as to results observed by them. The foreign substances may remain firm or may get loose. It is a partial enumeration of the factors that influence this behavior that I shall attempt to give.

I have nothing new, nothing original, to offer though this is a subject that lends itself most readily to experimental study. The facts I here present I have picked up here and there, frequently in articles not dealing with the subject of bone physiology primarily, but incidentally mentioned.

The teaching and study of physiology is carried out along fairly well defined lines, but the physiology of bone is one that has not attracted any considerable amount of study. A search through the *Index Medicus* and the Surgeon General's Catalogue reveals a surprisingly small number of articles on this subject. In the *Index Medicus*, bone and muscle are grouped together but bone seems to be put in the heading largely as a matter of courtesy.

Bone is living tissue, a specialized connective tissue, but I fear that it is frequently regarded as so much hard substance, wood or what not, to be cut and sawed and have nails and screws driven into it; but as it is a living tissue, and not like so much dead wood it responds to stimuli, and responds in a definite way, and it is our business to study and try to understand the character of response to each set of stimuli, to analyze them and not take things for granted.

I take it that this is to-day a real live subject, for, as one author has recently said: "Bone surgery is coming into its own again." That is, it is coming to occupy the place formerly held by the ovaries and the appendix, and that is at present occupied by the tonsils, by which I mean that hundreds of people who get the opportunity, and simply because they have the opportunity, think they are justified in operating on bone.

Bone responds to stimuli and these stimuli are both chemical and mechanical. The chemical stimuli affecting the bones in general, as, in disorders of internal secretions, acromegaly, osteomalacia, etc., or in diseases such as rachitis I do not propose to deal with here, but only with chemical stimuli affecting bone locally which will be taken up later.

Among the physical effects comes: First and foremost the general biological law that constant pressure causes atrophy, and intermittent pressure causes hypertrophy. This is a well-known biological law, and needs no special demonstration to prove it here. Let us see how it may or can apply to bone. The experiment Dr. Sherman mentioned—the nail with the constant pull on it from a rubber band—illustrates a part of this

law, namely, continued pressure causes atrophy. The constant pressure of the rubber band pressing the nail up against the bone caused an atrophy of the bone ahead of the nail. If the same condition were applied to the screw in a Lane plate the same would be true, the screw would loosen.

The other part of this law, intermittent pressure causing hypertrophy, can be seen illustrated by a patient with a slowly uniting fracture of the tibia, for example, in a plaster cast; kept flat in bed, the fracture unites slowly; allowed to get up and stump about on his cast and union will take place much more rapidly. It is illustrated again by the familiar fact that the strong muscles are attached into rougher and heavier surfaces and lines on bones than are weak muscles. This is in part (not wholly) due to the greater intermittent force applied.

Weight bearing lines in bone form heaviest where the force is greatest. This was emphasized by Julius Wolf.

In the correction of bowlegs, e. g., by pressure or osteotomy, the whole bone gradually straightens out. As weight is applied to the more concave part of the bone, the outer convex portion of the bone is absorbed, gradually disappearing entirely, and more and more bone is deposited in the weight bearing lines. It is this law also that is made use of in the correction of scoliosis.

That the local temperature has an effect is shown by the following extreme experiment reported by Rippert in the *Deut. Med. Woch.* 1909. He found that when the legs of animals were made bloodless, and then put in a freezing mixture for ten minutes, that the animals regained the use of the legs after a few days, but that the bone became necrotic; the cartilage, the periosteum, and the medulla remain living; the bone does not sequestrate but becomes covered with a new layer of thin bone, formed from the periosteum and the endosteum. This is, of course, an extreme procedure, but how frequently do we see bone made bloodless by an Esmarch bandage, exposed to lowered temperature for more than ten minutes. A careful series of experiments along this line would be a very valuable addition to our knowledge.

Also, Schepelman experimenting with hot air in the treatment of fracture in rabbits found that the hot air inhibited, to a certain extent, the formation of large callus.

The introduction of foreign substances into the tissues in general and also directly into bone, has, of course, been the subject of innumerable clinical experiments as well as some direct laboratory experiments. Lange of Munich, and his assistants Von Baeyer and Engelhardt, have studied foreign substances, particularly metals, and find that the chemical character makes a considerable difference, certain metals causing aseptic suppuration; for example, copper, and some metals being well borne; such as tin. They found also that electrical conditions must be taken into consideration, and if two metals are used aseptic pus is deposited around the negative electrode, for

example, when copper and zinc are used together the pus collects only about the zinc even though the copper alone always attracts the leukocytes. Thus it may be of considerable importance in the use of Lane plates, to consider the metals of which the plates and the screws are made.

Meisenbach of Buffalo, tried to demonstrate the influence of certain chemicals on the growth of bone. He injected various substances into the epiphysis of bone of young rabbits, and then studied them with X-Ray and histologically. The substances used were sterile water, sterile graphite pegs, staphylococcus vaccine, pure tincture of iodine, pure carbolic acid, pure alcohol, pure formalin, and two per cent formalin. With sterile water the results were negative, with sterile graphite pegs the results were on the whole negative, but one showed some thickening of the cortex and it is noticeable that the peg changed its position. The hole made by the canula always closed. In rabbits in which the graphite peg and staphylococcus vaccine were used together, six out of seven showed a thickening of the perichondral and endochondral bone in the diaphyseal region. No change was noticed in the epiphyseal line. Pure tincture of iodine showed no effect. The pure carbolic acid showed only slightly increased vascularity. Alcohol showed no change. With pure formalin all the rabbits showed a thickening of the cortex, irregularity of the epiphyseal growth, exuberant growth of the diaphysis, and a general widening and thickening of both epiphyseal and diaphysis. Two per cent. formalin showed similar changes, but not as extensive. His conclusions are as follows:

Bone can be stimulated to growth by chemical, mechanical and biochemical means. Mechanical stimulation chiefly affects perichondral bone formation, whereas chemical stimulation effects the epiphyseal line directly, causing proliferation of the cartilage cells and increases zones of provisional calcification and calcified matrix together with osteogenic tissue derived from the perichondrium. Mechanical stimulation is slow, whereas chemical stimulation is rapid. The combination of chemical and mechanical stimulation increases both perichondral and endochondral bone formation. Retardation of growth may occur if the zone of provisional calcification is destroyed, or if this zone is invaded by excessive blood clot or by destructive process.

Of all the substances used formalin gave best results on account of its antiseptic properties, and its affinity for protoplasm. Formalin injected upon epiphyseal line, becomes an insoluble compound and therefore affects the epiphyseal line, both mechanically and chemically with the distinct local rather than a systemic tendency. It causes formation of osteogenic tissue by influencing the zone of provisional calcified matrix, and by increasing the number of osteoblasts from the perichondrium.

This work of Meisenbach taken in conjunction with some done by Parsons and reported in the *Jour. of Anat. and Phys.* 1904, may throw some light on the formation of epiphyses. Par-

sons first points out that the epiphyses are not essential for (though they may be useful in) bone growth, as there are none in birds, except in one species. He divided all epiphyses into traction and pressure epiphyses—the traction epiphyses are those into which the strong muscles are inserted; and the pressure those in which the weight is borne from above. He also shows that it is the largest cartilagenous ends of bone that show epiphyses first, and that these occur in the center of the cartilagenous ball. At this point the pressure is greatest; now it is not only the pressure, as this would not explain why they occur in the largest first, but he believes that it may be that the centers degenerate first, and it is the blood vessels that grow in, in response to this degeneration, that carry the bone-forming cells with them. This may also be true in Meisenbach's experiments; that his chemicals cause slight necrosis, and in answer to this, the blood vessels grow in, carrying along the bone forming cells.

In the treatment of ununited fractures there is much more to consider than the mere approximation. Approximation does not mean union. Non-union occurs in 1 to 2 per cent. of all fractures, and it is only a small percentage of this 1 to 2 per cent. that does not unite on account of mechanical obstacles, interposed soft parts or a distance between the fragments.

Metal sutures of all sorts probably increase the normal softening that occurs about a fracture, and then the suture fails to hold. Also if the periosteum is ripped up it adds to the softening process, delaying union. If bones are cut they should not be sawed off too neatly, but rather leave slightly roughened edges to allow a certain amount of blood clot which will cause hyperemia, as in ununited fractures increased blood supply seems to help.

In all cases of operative procedure on bone, and particularly fractures that are operated upon, let us try to be a little more accurate in what we are doing and let us try to study the surrounding conditions so that we can arrive at some definite conclusion as to the value of given procedure.

Discussion.

Dr. Raymond Russ (presiding): Dr. Fisher is certainly to be congratulated upon this paper. If there is one subject that provokes discussion, it is the use of the Lane plates in fractures. Each man takes his own experience, and bases his conclusions on them. I have thought for some time that a study of the physiology of bone in relation to these plates would be most interesting. I think the Society should thank Dr. Fisher for his paper.

Dr. Samuel Hunkin: I am sure that I do not agree with Dr. Fisher in some of his statements, regardless of the authorities which he has cited. If I had a fracture, the nearer it could be gotten into apposition, and the more true it could be cut, the better I should be pleased, and less callous and more rapid union I should expect. I am not disagreeing with the experiments recited by Dr. Fisher, but with the conclusions he has drawn from them. I do not believe, for instance, a fracture of the tibia under ordinary circumstances would unite quicker if a fellow walked around on it than if it was kept quietly and securely in

Asplint. When union is delayed, however, then we know that weight bearing stimulates the production of callous and favors union, but not a neat repair as we like best. Dr. Fisher also made the statement that bone is easily rendered bloodless by Esmarch bandage for a long time. Now it is the hardest thing in the world in my experience to make bone bloodless unless you control the artery above the nearest proximal joint, and it does not get so very bloodless even then.

I do not see, under the reasoning given, how Dr. Fisher accounts for the increase of growth which sometimes follows tuberculosis, especially in the lower end of the femur. Personally also I believe that the epiphysis is a mighty important thing in the promotion of growth, much more so than Dr. Fisher would have us believe. Apparently in children, it is essential to growth, and if anything interferes with it the growth comes mighty close to stopping. I do not know how it is in birds, but if it is as Dr. Fisher says, I would not care to have my child treated like a bird could be treated for injuries around an epiphysis.

Dr. A. L. Fisher, closing discussion: In reply to Dr. Hunkin, I am not decrying accurate approximation—what I said was that union does not depend upon approximation.

With regard to the bone being bloodless, I know it is difficult to make it absolutely bloodless; but a relative shutting off of the blood supply is not difficult to accomplish.

About tuberculosis: I think the answer to that (this is purely my own idea) is that the chemical products formed by the tubercle bacilli in and about the joints stimulate the bone to growth. Whether the stimulation of cells is increased by the chemical products of the tubercle bacilli, or by the necrosis of the bone and the new growth in response to the necrosis, is more than I attempt to say. The experiments of Meisenbach are suggestive in this way. He injects substances and the bone becomes thickened. The growth is irregular, but he gets a great deposit about the point of injection.

THE ARNETH BLOOD COUNT IN PULMONARY TUBERCULOSIS— A REPORT OF 86 CASES.

By R. S. CUMMINGS, M. D., Los Angeles.

In 1896 A. M. Holmes¹ noted there was a morphological change in the neutrophile polynuclear leukocytes in tuberculosis. Arneth,² however, in 1904 was the first to note a definite relation between the state of the nucleus and the patient's condition.

He divided the neutrophile polynuclears into five classes, according to the number of nuclei each contained. Class I containing one nucleus, class II containing two nuclei, class III containing three nuclei, class IV containing four nuclei and class V containing five nuclei. He found in the normal person the following average polynuclear neutrophile pictures: 5% of cells fell in class I, 35% fell in class II, 41% fell in class III, 17% in class IV, and 2% in class V. In tuberculous patients, however, the count was frequently as follows: 12% in class I, 48% in class II, 30% in class III, 1% in class IV, while Class V contained none. This shows a marked increase in the cells with one and two nuclei with a corresponding decrease in those with four and five.

Arneth believed that tuberculosis could be diag-

nosed by an increase of the cells containing one and two nuclei, a condition which he termed shifting to the left.

In this country Klebs³ in 1906 confirmed Arneth's findings regarding a shifting to the left in tuberculosis.

In 1908 Bushnell and Treuholtz⁴ reported a series of observations both upon normal and tuberculous persons. They established what they termed an index by adding classes one and two and half of class three of each 100 cells, which facilitated a comparison of observations. They found their index for normal persons to be 67, i. e., 67% of the cells fell in classes I, II and one-half of class III, while in the tuberculous the index would rise to a height of 85-90, showing a marked shifting to the left.

In 1909 Minor and Ringer⁵ reported their findings which served to confirm Arneth's contentions. They were very enthusiastic over the result of this method in assisting to more correctly prognosticate the condition of the patient, which enthusiasm was somewhat moderated by further work as recently reported by Ringer.⁶

Later Reed-Lewis⁷ and Miller and Reed⁸ confirmed the observations of Arneth upon cases observed for many months. From counts upon thirty apparently normal persons whose average index was found to be 48, they concluded that anything from 45-55 could be considered normal.

They also found a marked deviation or shifting to the left in tuberculous patients, the worse the condition of the patient the greater the deviation.

Cohen and Strichler,⁹ reporting observations made upon tuberculous patients, found that as a patient improved there was a shifting to the left in place of a shifting to the right as reported by other observers; i. e., they found an increase of class IV and V and a diminution of class I and II.

It is impossible to understand why their results were so adverse to those of other writers; one criticism, however, is that no Arneth counts upon normal persons were reported, thus establishing their normal index.

Kagan¹⁰ also concluded from his observations that the Arneth count was unreliable.

Williams¹¹ results average about the same as other observers with the exception that he found great variation in his normal counts.

The results of Miller, Lupton and Brown¹² were similar to those of the majority of observers. They concluded that the Arneth count could not be used as a guide to dosage of tuberculin.

Briggs¹³ observations tend to confirm Arneth's contentions. His normal index was 58, he having made 30 counts upon 17 apparently healthy persons. He observed a shifting to the left in active tuberculosis.

A vast deal of discussion and work has been produced among German observers, a rather complete bibliography of which is given by Miller and Reed and Schilling-Torgau.¹⁴

In all of our examinations 200 cells were counted, 100 on each of two coverslip smears. Blood was taken from the ear and very thin smears were made, great care being exercised to avoid rupturing

the leukocytes. Coverslips were passed through the flame just before smears were made, thereby preventing the condensation of moisture when coming close to the ear which interferes with the spreading of the blood.

Wright's stain was found most satisfactory. All nuclei connected by a thread only were counted as two, while those connected by a distinct isthmus were counted as one. When one nuclei was superimposed upon another they were counted as two. Those in which any question existed were carefully studied under a high power lens.

Our observations were made at the Barlow Sanatorium and have extended over a period of ten months, in which time 80 patients have been studied upon whom 206 counts were made. Thirty-six counts were made upon 22 apparently normal individuals, both male and female, between the ages of 20 and 50 years, thereby establishing a normal index.

No. persons studied.	No. counts made.	Highest Index.	Lowest Index.	Average Index.
22	36	66	43	55

This index agrees with the majority of observers. In those upon whom several counts were made a marked constancy was noted.

Of the 80 patients 26 were classed in the third stage (Turban) and 54 in the second stage. Those in the second stage were as follows:

No. patients observed.	No. counts made.	Highest Index.	Lowest Index.	Average Index.
54	124	81.5	33	60

Those in the third stage showed as follows:

No. patients observed.	No. counts made.	Highest Index.	Lowest Index.	Average Index.
26	82	92	52.5	73

It will be noted that there is a wide difference between the highest and lowest indices.

This can be understood when we consider that patients having a very slight pulmonary involvement in addition to a slight middle ear or larynx tuberculous inflammation must be classed in the third stage. Also patients who have cavity formation and yet are in good condition and rapidly recovering are still classed in stage three.

In second stage patients with high counts, some were counted after an acute illness, as pneumonia, yet were still in stage two. Therefore the average count is the one which gives the most correct general information.

Of greater interest is the classification according to the prognosis. The 80 cases were divided into three classes, viz: good, questionable and bad, as taken from the records of the attending physicians. The following table shows:

Prognosis.	No. patients.	Highest Index.	Lowest Index.	Average Index.
Good	53	83	33	60
Questionable	10	78	50	67
Bad	17	92	52.5	77.5

Numerous cases might be cited showing a gradual decrease of the index as the patient improved or an increase as the patient became worse. In general, however, it was observed that there was very little change from month to month, unless some acute complications, as a serious hemorrhage or pneumonia, intervened, in which case a rapid increase of the index was observed. In no case did we observe a raising of the index as the patient improved or a lowering as the patient became

worse, except in two far advanced patients a short time before death in which the index gradually became lower.

The following conclusions seem to be justified:

1. The Arneth count has no diagnostic value but assists in prognosis only.
2. In extensive tuberculous inflammation of the lungs there is an increase of the neutrophile leukocytes containing one, two and three nuclei at the expense of those containing four and five nuclei.
3. As a patient becomes worse the index gradually becomes higher.
4. As a patient improves his index gradually becomes lower.
5. An index over 75 as a rule is found in patients with a bad prognosis.

6. That if one follows the Arneth count absolutely he will frequently find himself mistaken, but it will be found of positive value in questionable cases as corroborative evidence only.

In conclusion, I want to thank Dr. W. Jarvis Barlow and the attending staff of the Barlow Sanatorium for their kindly interest and their many helpful suggestions.

BIBLIOGRAPHY.

1. Holmes, A. M., *Med. Rec.* 1896, L. 325, J. A. M. A. 1897, xxix 828.
2. Arneth, Jos., *Die Lungen Schwindsucht*, etc., Leipz. 1905, J. A. Barth.
3. Klebs, A. & H., *Amer. Jour. Med. Sc.*, cxxxii, 538.
4. Bushnell & Treuholtz, *Med. Record* lxxiii, 471.
5. Minor & Ringer, *Amer. Jour. Med. Sc.*, xli, 638.
6. Ringer, Paul H., *Am. Jour. Med. Sc.*, cxliv, 561.
7. Lewis, M. R., *Hopkins Bulletin* xxii, 428.
8. Miller & Reed, *Arch. Int. Med.* ix, 609.
9. Cohen & Strickler, *Boston, Med. & Surg. Jour.* clxv, 563; *Am. Jour. Med. Sc.* cxlii, 691; *N. Y. Med. Jour.* xcv, 53.
10. Kagan, S. H., *Boston Med. & Surg. Jour.* clxii, 709.
11. Williams, W. W., *Col. Med.* viii, 175.
12. Miller, Lupton & Brown, *Am. Jour. Med. Sc.* cxliii, 683.
13. Briggs, L. H., *Cal. State Jour.*, x, 337.
14. Schilling-Torgau V., *Folia. Haemat.* xii, 130 (Part D).

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ON THE DIFFERENTIAL DIAGNOSIS OF APPENDICITIS AND NEPHROLITHIASIS.*

By M. KROTOSZYNER, M. D., San Francisco.

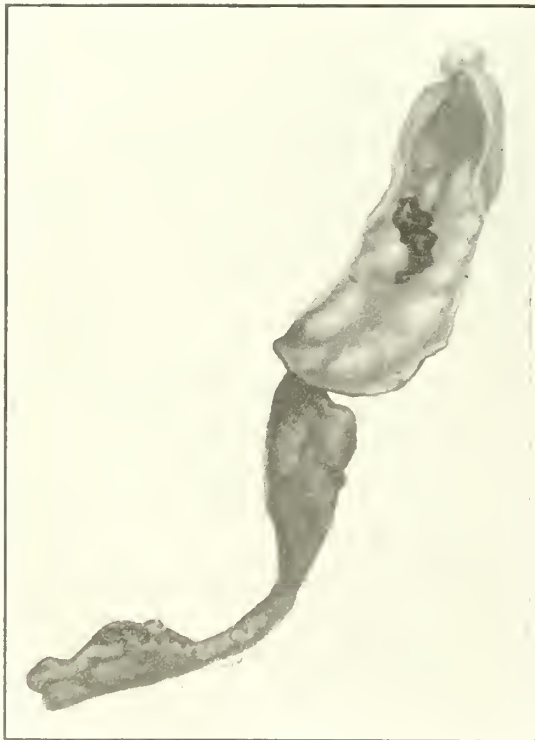
Attempts to recognize and remove concretions of the upper urinary tract date back to the dawn of medical history at the times of Hippocrates, when perforated calculi were extracted or paraneuritic abscesses were successfully emptied by incision. The treatment of nephrolithiasis, of course, became a rational and scientific procedure only since Simon in 1871 paved the surgical road to exposure of the kidney. Since then the literature contains an appallingly large amount of individual observations which have shed much light upon the anatomy and clinical pathology of nephrolithiasis. Particularly, though, since the perfection of radiographic technic the recognition of lithiasis of the upper urinary tract was so simplified, that, in the great majority of instances, the correct diagnosis can be made, at present, by the average well-trained practitioner.

Equally well, if not better established is, at present, the diagnosis of appendicitis. The symptomatology and clinical pathology of this disease

* Read before the Surgical Section of the San Francisco County Medical Society, March 18, 1913.

appear to be so deeply rooted in the minds of the profession—especially in this country—that almost every symptom located at the right lower quadrant of the abdomen is apt to arouse the suspicion of being due to an affection of the appendix. Normal appendices are, therefore, removed in many instances, while other pathological conditions are not unfrequently overlooked. Instances, on the other hand, in which an unsuspected appendicitis at operation is found to be responsible for a symptom-complex pointing to an entirely different condition, are still comparatively rare. Therefore the detailed report of the following case appears to be justifiable:

A woman of 30 was, about 9 months ago, transferred from the gynecological to the urological service of the German Hospital. Her family and previous histories were unimportant. Menstrual flow started at the age of 14, which, at first, was normal in amount and duration but, during the last few years, became scant. She has had two miscarriages, both of them induced; the first occurred 10 years ago, when the patient carried the fetus up to eight months, and the second one year ago, when a three months' fetus was removed. She was curetted three years ago on account of a yellowish vaginal discharge which was accompanied by fever



and headache. Since her first miscarriage the patient suffered from intermittent attacks of pain in the small of the back, which were aggravated by hard manual work. She had to get up three or four times a night to pass water, but the act of urination, at that time, was not connected with pain or burning. She entered the hospital two or three months prior to coming under my observation, where, at the gynecological service, a right-sided salpingitis was diagnosed. A laparotomy was performed, the right adnexae were removed and the position of the uterus was remedied, the wound healing by first intention. While convalescing from this operation the patient had repeated chills and

fever connected with pain on micturition which was agonizing in character. Therefore she was removed to the urological service.

Status: General examination negative. Kidneys not palpable. Patient complains of sharp pains on right side of back in lumbar region, radiating to the lower part of abdomen and down to the inner aspect of right thigh, as far as the knee. The pain is always present, being dull in character while the patient is at rest, it is accentuated by active or passive movements of the right lower extremity. Urine cloudy, containing abundant pus microscopically. Cystoscopy shows the picture of a subacute cystitis. Meatoscopy demonstrates normal spurt on the left side, while the right ureteral orifice apparently goes empty. The ureter catheter passes on the left side up to the renal pelvis without obstruction, while the right ureter can only be catheterized to a point about 15 cm. distant from the vesical meatus. The obstacle located at that point cannot be overcome by lower-calibred catheters or ureteral bougies. No urine is flowing from the right ureter, nor can fluid be obtained from the right side by the usual manœuvres. Chromocystoscopy with indigo-carmin demonstrates blue spurt on left side within 6 minutes, while no color appears on the right side within an hour. The usual functional tests show normal values on the left side and, microscopically, nothing of pathological note. Comparative functional tests were obviously not feasible because no urine could be obtained from the right side. Blood cryoscopy showed—0.549. Tests for determination of total renal function by means of phenolsulphonphthalein and phloridzin give normal values. Radiography shows apparently normal kidney-shadows on both sides, and two small well defined shadows on the right side of the spinal column at the site of the ureteral impediment and apparently in the course of the ureter as ascertained by a shadow-casting ureter catheter.

With this evidence at hand the obstruction of the lumen of the right ureter was considered to be due to a concrement, the operative removal of which by ureterotomy was decided upon.

Operation: General anesthesia. Incision parallel to Poupart's ligament and extending seven to eight inches upward towards the right lumbar region. Incision carried down to peritoneum, which is pushed towards mid-line, until the large iliac vessels and the right ureter are exposed. The latter is found to be imbedded in dense adhesions particularly at the point of its crossing with the ext. iliac. In the attempt to free the channel from these adhesions the peritoneal cavity is opened and the long and tortuous appendix is found to be a part of the adhesions upward and downward until a point near its insertion to the bladder. Suture of rent in peritoneum; wound closed by layers without drainage.

The appendix when opened, showed in its center several fecal concretions, which corresponded to the shadows on the plate. (See Fig. below.)

The patient rallied well from the operation. The convalescence was complicated the first week after the operation by a slight leakage from the right ureter; otherwise uninterrupted recovery.

About six weeks after the operation the right ureter could be catheterized to a point about five cm. from its renal pelvis, while the obstruction encountered before the operation could be easily passed. The right-sided renal secretion is still cloudy, containing, microscopically, pus, while the left-sided urine is clear and, microscopically, normal. Urea on right side 0.002; on left side 0.011. Phthalein appears on the right side after 22 and on the left side after seven minutes, its quantity during one hour is 38% on this side, while only a trace is recovered from the right-sided urine during the same period of time.

At later cystoscopic sittings, at monthly intervals, two, three and four months after the opera-

tion an obstruction of the right ureter is encountered at the same point as before the operation. No fluid can be obtained, no color can be recovered after Phthalein from that side. Since, though, the patient does not suffer any discomfort from micturition and since her general condition is excellent, she cannot be persuaded to submit to further examinations.

The literature contains but scant reference to like or similar observations as that recorded above. The most noteworthy publication dealing with the differential diagnosis of appendicitis and lithiasis of the right upper urinary tract seems to be that of Brown, Englebach & Carman¹ who have carefully studied the various relations of the appendix to the right ureter by anatomic and stereoscopic skiagraphs on bodies whose appendix was injected with mercury, while stylets were lying in the right ureter. The most important relation of these two organs lies, as proven by these radiograms, at the brim of the pelvis just anterior to the right sacroiliac synchondrosis. With the cecum in the normal position this point corresponds to the base of the appendix and the location at which the ureter crosses the ileo-pectineal line. This point of the appendix is separated from the ureter by the peritoneum only. It is thus easy to conceive how a lesion of the appendix, which has extended to the peritoneum, can involve the ureter by contiguity and the assumption to recognize pus, albumen and blood in the urine as caused by contiguous inflammation of the right ureter in an individual suffering from appendicitis, appears to be justifiable.

My own case illustrates clearly that, under these circumstances, concretions in the appendix may have the same location, shape and size on the plate as ureteral calculi and vice versa.

It is probable that Kelly's wax-tipped catheter, introduced with faultless technic, or a ureter-catheter with a telephonic attachment would have aided in the diagnosis in a negative sense. I do not think, though, that the correct positive diagnosis was feasible prior to the operative autopsy *in vivo*.

Discussion.

Dr. S. O. Beasley: I saw an interesting case in which the appendix and the upper end of the ureter were adherent to one another. This was a case on which Dr. Emmet Rixford operated and as I do not see him present I will take the liberty of referring to the case. This patient had among other symptoms a large amount of pus in his urine and pain in the region of the right kidney. I am not familiar with the other symptoms and signs which were present in this case. The region of the pelvis of the right kidney was exposed by the usual lumbar incision and a moderate sized abscess was opened just behind the pelvis of the right kidney. A stone about $\frac{3}{4}$ inch in diameter, if I remember correctly, was found in the abscess cavity. This cavity communicated with the pelvis of the kidney by a perforation in the posterior wall of the latter. Through this opening the pus around the stone was discharged into the pelvis of the kidney and so escaped by the ureter into the bladder. Projecting from the surface of the stone was a sharp piece of metal resembling the end of a tack or possibly a heavy needle, and further examination of the local conditions satisfied Dr. Rixford that the stone was an enterolith which had formed in the end of an appendix which occupied this unusual position. A radiograph in this case would probably have shown the metal on the

stone and so would have indicated its probable origin.

Dr. Alfred Newman: In a case I operated a month ago, the patient suffered with pain on the right side for some time. The X-ray showed two shadows in the region of the right ureter, which was impossible to catheterize. An operation was undertaken to explore the ureter. The patient was found at operation to have appendicitis and pericolicitis, and the shadows were caused by two glands in the mesentery. The glands were slightly calcified. The patient recovered and the pain disappeared. This would show another case where shadows superimposed in the course of the ureter simulate urethral stone.

Dr. W. W. Boardman: The X-ray catheter may be of great aid in differentiating ureteral from extra-ureteral shadows. In the case of a supposed ureteral stone, the X-ray catheter would be passed into the ureter and two exposures made—one with the tube well to the right side, the other with the tube well to the left side. If, now, the shadow cast be due to a ureteral stone, it will of necessity lie in close proximity to the shadow cast by the catheter. If, however, the shadow be due to some formation lying in other planes than the ureter, there will be more or less separation of the suspected shadow and the catheter shadow in one or both of the radiograms. However, in a case such as the one reported, if it so happened that the stone lay very close to the ureter, recognition of its extra-ureteral origin might be impossible.

As regards the radiographic recognition of calcified glands and ureteral stones, will say that as a general rule, ureteral stones will be found to be more or less oblong or fusiform, of uniform density and with their long axis in the line of the ureter, whereas calcified glands are usually more or less circular in outline, of irregular density and if presenting a long axis, it rarely lies in the line of the ureter. Again, calcified glands are much more apt to be multiple than are ureteral stones.

As to the use of the waxed tip catheter in recognizing ureteral stones, the presence of definite scratching of the wax (the operator being sure of his technic) is certainly very strong evidence. However, Dr. Kelly would not rule out the presence of the ureteral stone on the negative evidence furnished by this proceeding, especially with the apparent positive radiographic evidence present in this case.

Dr. S. T. Pope: Two cases of a similar nature have come under my observation. The first was one in which all the physical signs and clinical history pointed to the presence of a ureteral calculus. The patient had repeated attacks of mild colic, referable to his right flank, extending down the groin, accompanied by vesical tenesmus. There was no fever, no leukocytosis, no pronounced local tenderness over the appendix. His urine contained microscopic blood and pus, with urate deposits. Cystoscopic examination showed pus from the right ureter. I suggested the possibility of a ureteral calculus, and proposed that an X-ray be taken. Within a few days, before he had time to attend to the radiography, he developed a typical attack of appendicitis. At operation it was found that his appendix was actively inflamed, and lav adherent to the right ureter, from which it was separated with difficulty. His recovery was prompt, and all renal findings disappeared.

The second case was one in which the onset of pain was confined to the right testicle—no fever, no frank signs of appendicular involvement, no leukocytosis. He had blood and pus in his urine. A diagnosis of ureteral calculus was made. On the second day this diagnosis was in question. The third day changed our opinion entirely, and, the Ochsner method of treatment then being in vogue, the case was conducted as one of ruptured ap-

¹ J. Am. Med. Ass'n., May 7th, 1910.

pendicular abscess. The man died on the fifth day, and at autopsy a large enterolith, having a nucleus of hair, was found embedded in a fistulous communication between the appendix and the right ureter, at the brim of the pelvis.

THE SKIN REACTION AFTER COWPOX VACCINATION. A POSSIBLE AID IN PUBLIC HEALTH ADMINISTRATION.*

By JOHN NIVISON FORCE, M. D., Berkeley.

From the Department of Hygiene, University of California.

During the course of an anti-vaccination meeting held in Berkeley recently, the principal speaker of the evening issued a challenge for any person present to define successful vaccination.

The anti-vaccinationist, firm in the conviction that the medical profession still holds unchanged the hypothesis of Jenner, must of necessity find many weak points in the definition laid down in the present vaccination act.¹

For obvious reasons no one in the audience had the temerity to take up the gauntlet thrown down by this knight of medical freedom, and his further statement that vaccination does not guarantee protection from smallpox found no dissenters.

This paper is an attempt to frame a definition of successful vaccination which, while probably not meeting the requirements of the challenger, will at least take cognizance of certain facts not usually recognized from a public health administrative standpoint.

In Jenner's original monograph (1798) the statement is made that the attempt to inoculate with variolous matter a person who had previously had cowpox, would result in a speedy efflorescence around the site of inoculation, which would fade away in a few days without further symptoms.

"It is remarkable," writes Jenner, "that variolous matter, when the system is disposed to reject it, should excite inflammation on the part to which it is applied more speedily than when it produces smallpox. Indeed, it becomes almost a criterion by which we can determine whether the infection will be received or not. It seems as if a change which endures through life had been produced in the action or disposition to action in the vessels of the skin; and it is remarkable too, that whether this change has been effected by the smallpox or the cowpox that the disposition to sudden cuticular inflammation is the same on the application of variolous matter."

Von Pirquet gave to Jenner's "sudden cuticular inflammation" the name "immediate reaction." He showed that inoculation of a previously sensitized individual with the organism producing vaccinia, would give rise to one of several related phenomena.

1. If specific antibodies were present in the blood of the individual, the vaccine matter would be promptly digested. Clinically this "immediate reaction" is manifested by a small areola of

"efflorescence" with perhaps a papule which disappears by the end of 48 hours.

2. If specific antibodies are not present but the power of forming them still persists, the vaccinia organisms may begin to grow. This growth is checked as soon as the antibodies are sufficiently developed. Clinically we see a scale of appearances ranging from "early reaction" and "torpid early reaction" through many types of "accelerated reaction" or vaccinoid, depending on the length of time between the inoculation and the appearance of the antibodies.

The varying clinical pictures ranging from "immediate reaction" to true vaccinia must all, therefor, be regarded as successful vaccinations, since they are witnesses of the formation of antibodies and the consequent restoration of immunity. Figuratively speaking, the further the clock has run down the longer it takes to wind it up.

The following illustrative cases are taken from a series of eighty individuals examined with reference to the "sudden cuticular inflammation" of Jenner, or the skin reactions of Von Pirquet. These were chosen haphazard from over twelve hundred persons vaccinated during the months of January and February, 1913, at the University of California Infirmary.

1. W. P.—Had smallpox four years ago and is pitted on forehead, cheeks and nose. At the end of 24 hours had a very faint areola around the vaccinated point. At the end of 48 hours this had grown to a bright red areola measuring 15 mm. surmounted by a small papule. At the end of 72 hours there were signs of beginning papilla formation, and a final observation at the end of five days resulted in a diagnosis of vaccinoid.

2. J. B. P.—Had smallpox four years ago and is very deeply pitted, especially on the nose. At end of five days, when the normal vaccinia is just beginning to show papule formation, this case had developed a vaccinoid.

These two cases are examples of the "accelerated reaction."

3. H. F.—Vaccinated in 1905 and at present has a 10 mm. scar which has *no pits*. In 1907 had smallpox, and it well pitted on nose and forehead. Twenty-four hours after revaccination showed a 4 mm. areola around the point of insertion. At the end of 48 hours this had grown smaller, and at the end of five days had disappeared.

4. H. R. M.—Vaccinated between 15 and 20 years ago, and has a poorly marked scar, measuring less than 15 mm. Twenty-four hours after revaccination there was no areola around the point of vaccination. At the end of 48 hours areola of 5 mm. and a small papule. At end of five days a vaccinoid. Revaccinated some days later and showed both areola and papule at the end of 24 hours. At the end of 48 hours showed areola only, which had disappeared by the time of the fifth day observation.

These two cases are examples of the "immediate reaction" which in the case of H. R. M. followed an accelerated reaction.

* Read at the Forty-third Annual Meeting of the State Society, Oakland, April 1913.

¹ Successful vaccination means that there has been evidence of a normal vaccinia, and that the person so vaccinated may be assured of immunity to smallpox for at least five years without repetition of the vaccination. Vaccination Act of March 7, 1911.

5. R. P.—Vaccinated over twenty years ago and has a small, well-pitted scar. During the course of some observations on the potency of vaccine virus, was revaccinated with three different strains of virus, the first two resulting in failures and the third in a vaccinoid. Before the vaccinoid reaction had reached its height she was revaccinated a fourth time in two spots with a control. At the end of 24 hours there was no areola. At the end of 48 hours there was no areola, and at the end of five days there had been no change in the spots, though the vaccinoid had meantime run its course.

This case shows that there is a time element in antibody formation. The third vaccination was destined to stimulate antibody formation, but the fourth followed so quickly that there were as yet no antibodies, and in consequence there was no skin reaction to be observed.

6. I. R.—Vaccinated within the last five years and has a small, well-pitted scar. Twenty-four hours after revaccination had a very faint areola. Forty-eight hours after showed 8 mm. areola. At end of four days 10 mm. areola, with slight papule, which faded without developing into a papilla. Revaccination a few days later gave a 7 mm. areola at the end of 24 hours, reduced to 2 mm. at the end of 48 hours, and subsequent rapid fading.

This case shows "torpid early reaction" which stands on the border between the early reactions and the vaccinoids. Revaccination gave the immediate reaction.

7. C. S.—Vaccinated within the last month, has three deeply pitted scratches 8 mm. wide by 40 mm. long. Revaccinated in two spots with a control. At the end of 24 hours showed 3 mm. areola around the control point, and 10 mm. areola around the vaccinated spots. At the end of 48 hours the areola had markedly decreased and thereafter rapidly faded.

This case illustrates "immediate reaction" in an extreme degree.

8. G. S.—Vaccinated several years ago, with no reaction at the site of inoculation, but claims to have had a generalized vaccinia, which left numerous shallow circular scars, slightly pitted, measuring 10 to 15 mm., distributed mainly on forearms and legs. No areola 24 hours after revaccination. At end of four days 8 mm. areola which proceeded to develop into the papilla of a normal vaccinia.

This case illustrates the value of a ready-made diagnosis.

9. V. N.—Vaccinated over 20 years ago and has a small keloidal scar. At the end of 24 hours had 5 mm. areola which developed into a papule at the end of 48 hours and had begun to subside at the end of 72 hours.

This case illustrates "early reaction" which is slower than "immediate reaction."

10. A. W.—Vaccinated between 16 and 20 years ago, and has a small, poorly-marked scar. Revaccinated in two spots with a control. At the end of 24 hours 3 mm. areola on the control

point, and 6 mm. on each of the vaccinated points. At the end of 48 hours practically the same condition. At the end of five days a 20 mm. areola which developed into a vaccinoid. Again revaccinated after some days showed 8 mm. on the vaccinated points at the end of 24 hours, 6 mm. with slight papule at the end of 48 hours and only small brown spots at end of five days.

11. Vaccinated between 11 and 15 years ago and has a large scar. Revaccinated in three spots, observed at end of a week and recorded as a failure, there being only three tiny scabs to mark the spots of insertion. Again revaccinated in three spots at end of ten days from previous revaccination. In 24 hours 6 mm. areola around all 6 spots. At end of 48 hours still had 4 mm. areola which rapidly disappeared.

This case illustrates the effect of insufficient dosage, or "sleeping germs." The combined organisms of the two doses were able to call forth the immediate reaction which the single dose was not able to do alone.

Assuming that it might be of interest to read the observations on the series of eighty cases in terms of existing scars, two tables have been prepared to accompany this paper.

The first table shows the number of individuals in the series, giving each type of reaction, and further classes the reactions according to the observed attributes of the existing scars.

The second table is a similar grouping on a percentage basis.

TABLE I.
Immunity Reactions Classified According to Attributes of Scars.

Attributes of Scars.	Vaccinia	Torpid Early Reaction	Early Reaction	Immediate Reaction	Sleeping (Germs)	Anti-Anthraxis
NO SCAR	1	4	3	2		
CHARACTER:						
pitted		4	2	5	9	1
keloidal		2	1	5	9	
smooth	4	1	3	4		1
SIZE:						
small—under 15 mm.	2	1	11	15		1
medium—16-25 mm.	2	1	4	7		
large—26-40 mm.		3	1		1	
very large—over 40 mm.				1		
AGE:						
under 5 yrs.	1	1	2	3		
6-10 yrs.	1	10	3	5		
11-15 yrs.	3	3	4	11	1	
16-20 yrs.		2	2	1		1
over 20 yrs.		2	1	4	7	1

TABLE II.
Immunity Reactions Classified by Percentages and According to Attributes of Scars.

Scars.	Vaccinia.	Vaccinoid.	Immunity Reactions.
GOOD			
pitted & keloidal..	0	23	77
POOR			
smooth	21	37	42
SMALL			
under 15 mm.	6	19	75
LARGE			
over 15 mm.	8	33	59
RECENT			
under 10 yrs.	7	41	52
AVERAGE			
11 to 20 yrs.	11	19	70
OLD			
over 20 yrs.	0	14	86

In this latter table it is interesting to note that

individuals with small, well-pitted scars furnished the highest percentage of immunity reactions, as did the individuals whose scars were over twenty years old.

Let us now consider the administrative application of Jenner's observation as explained by Von Pirquet.

In accordance with the vaccination act, a California child must be revaccinated every seven years. If the revaccination fails the child is given a "due diligence" certificate good for one year. The average physician will not issue such certificate until he has observed the failure of two or more attempts at revaccination, usually six days apart. During the recent outbreak of smallpox in Berkeley, all unvaccinated children and all children subject to revaccination were excluded from the schools. This resulted in the loss of much school time and attendance money chargeable to the "due diligence" clause of the vaccination act.

A different story would have been told if these tests of immunity had been in recognized use. Three observations following the vaccination at the end of 24, 48 and 72 hours respectively, would have given information upon which a "due diligence" certificate might have been issued with a clear conscience. It would have been necessary to repeat the vaccination only in the few doubtful cases due to "sleeping germs." If the local school department rules prescribed the number of vaccinations necessary before issuing the "due diligence" certificate, the later ones could follow the first one in rapid succession if an "immediate reaction" has given clue to the immunity of the subject; while if the first one has given a vaccinoid the later ones will give the "immediate reaction."

A better plan, however, would be to class all these evidences of immunity as successful vaccinations, for indeed the immunity conferred must be the measure of the success. This would lead to the use of a definition of successful revaccination, based on the recognition of these principles. The appended definition attempts to embody these facts in some degree.

Successful vaccination is defined as visible evidence of a normal vaccinia; provided, however, that if the person under observation has had smallpox or has had a previous vaccination, visible evidence of a modified vaccinia (sometimes known as and called vaccinoid), or evidence of any recognized reaction of immunity against vaccine, shall constitute successful vaccination.

CHRONIC DISEASE OF THE GALL-BLADDER AND APPENDIX AS ETIOLOGIC FACTORS IN THE PRODUCTION OF DIGESTIVE SYMPTOMS.*

By W. FRANCIS B. WAKEFIELD, M. B., M. D. C. M.,
San Francisco.

Normal gastro-intestinal function is disturbed to a greater or less extent by any pathologic condition within the abdominal cavity. At times this func-

tional disturbance is noticed merely as an accompaniment of manifest local disease somewhere; at other times the disturbed physiologic function of the gastro-intestinal tract is the predominant feature to such an extent as to obscure concurrent local pathology, and the associated, and probably etiologic, local lesion is apt to be entirely overlooked. This latter class is the one particularly pertinent to the present discussion. A maximum amount of general, chiefly gastro-intestinal, symptoms; a minimum amount of local signs.

The profession as a whole has been slow in recognizing the fact that most cases of chronic indigestion, particularly those characterized by periodic acute or subacute exacerbations, have as their causative basis a chronic inflammation of either the gall-bladder or appendix or both. Valuable articles dealing with this subject have appeared from time to time in our medical literature. They seem, however, to have failed to make the general impression their worth deserves. This is evidenced by the fact that so very many of these cases receive at the hands of their attendant physician a long course of desultory treatment for indigestion without any, or at best but transient, improvement of symptoms, while the real etiologic pathology remains unrecognized, often remains unsought for, until the patient, disgusted and discouraged, seeks new advice, and finally the real cause of the trouble is discovered and remedied.

As a matter of fact the vast majority of the patients who are now being treated for chronic digestive disturbances, who have been coming to the physician's office for several months, sometimes better, sometimes worse, are suffering either from a chronic ulcer of the stomach or duodenum, or from the gastro-intestinal phenomena which represent chronic intoxication resulting from the absorption of semi-toxic inflammatory products in some organ closely associated with the gastro-intestinal canal. Nine times out of ten the focal points are the gall-bladder and appendix.

The local findings are very variable. In most instances a marked tenderness on deep pressure is more or less constantly present. At times patients are conscious of right-sided pain or discomfort. In many cases, though, the local signs are negligible and correct conclusions can be reached only by painstaking investigation and intelligent exclusion.

To differentiate between a chronic ulcer of the duodenum and a chronic cholecystitis sometimes presents difficulties. Usually, however, the symptoms of duodenal ulcer are very clear-cut: the characteristic pain; its relationship to the ingestion of food; its complete relief on again taking food; its recurrence after two or three hours; the presence of occult blood in the stools.

Many writers lay a good deal of stress on the evidence produced by attacks of gall-stone colic and the presence of jaundice as means of discrimination between cholecystitis and duodenal ulcer. I wish, in the most emphatic terms possible, to decry the value of these purely accidental symptoms. Their presence certainly points to disturbance of the gall-bladder or ducts, but their absence does not imply that the gall bladder is free from disease. Jaun-

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

dice, associated with cholecystitis, simply means that there is allied obstruction of the hepatic or common bile duct. The percentage of cases in which this occurs is comparatively small. Typical attacks of gall-stone colic point to the fact that there is associated cholelithiasis, and, furthermore, that the stones are sufficiently small to be forced, by contraction of the gall-bladder, into the cystic duct. The gall-bladder is quite frequently the seat of chronic inflammation; is unable to empty itself, owing to the viscosity of its fluid contents; yet no stones are present. Even when stones are present the majority of the cases are not characterized by typical attacks of colic because the stones are not small enough to be forced into the cystic duct. The gall-bladder may itself contract on a big stone and give rise to attacks of pain, but not the characteristic, excruciating pain that marks the passage of a stone through the ducts.

In working out these cases, the stomach contents, after a test meal, should be analyzed. Not much weight, however, can be placed on the results. The evidence thus procured is sometimes corroborative. Should we find complete absence of free hydrochloric acid we consider a possibility of gastric carcinoma and search for other evidence. We find this symptom, though, not infrequently, in chronic appendicitis. Again, hyperacidity, the common accompaniment of ulcer, is also found in most cases of chronic appendical or gall-bladder disease. The degree of hyperacidity might sometimes be of value as a means of differentiation in doubtful cases.

To those trained to read correctly the evidence presented, much valuable information can often be obtained from X-ray plates.

To differentiate between chronic cholecystitis and appendicitis is often difficult, sometimes impossible, always unnecessary. It is quite sufficient to decide that a given set of symptoms are probably due to a chronic inflammation of either the gall-bladder or appendix or both and to advise remedial surgical measures. If other abdominal or pelvic pathology has been carefully excluded, an incision along the outer border of the right rectus muscle extending from the costal arch to a point opposite the umbilicus will permit of careful examination of the cecum and appendix, of the duodenum and stomach and of the gall-bladder and ducts and through this incision both the gall-bladder and appendix may receive any requisite surgical treatment.

The general symptoms most commonly noted as the result of the systematic intoxication which accompanies chronic cholecystitis and appendicitis are recurrent attacks characterized by loss of appetite, indigestion, epigastric pain or discomfort and constipation. Accompanying these gastro-intestinal symptoms there is usually, in greater or less degree, general lack of musculo-nervous tone and mental depression. A certain amount of discomfort after eating, constipation and a general lack of muscular and mental vigor are apt to be present most of the time, but these patients are nearly always subject to distinct, more or less acute, exacerbations, at which times all the chronic symptoms are greatly

exaggerated. Sometimes right-sided discomfort is complained of.

While the above clinical picture is that most frequently observed, we must remember that chronic pathologic conditions of the gall-bladder and appendix will frequently cause unusual reflex symptoms. For instance, occasionally we encounter recurrent hemorrhages from the stomach or from the urinary tract associated with chronic appendicitis.

In conclusion let me urge that we cease to consider our duty fulfilled when we have given a little dietetic advice and a dose of pepsin to patients complaining of symptoms of disturbed digestion. No class of patients is more deserving of careful diagnostic study and yet, in general, receive so little. A thorough study of these patients is our imperative duty and always must we consider the gall-bladder or appendix as possible etiologic factors. Further, when careful investigation fails to disclose any pathology in the stomach or intestines themselves, or elsewhere, to account for the symptoms, and when the symptoms continue in spite of thorough general treatment, we should then advise surgical exploration of the gall-bladder and appendix and appropriate surgical treatment of whatever pathologic condition is discovered.

STATE CARE FOR CRIPPLED CHILDREN IN CALIFORNIA.

By DOUGLAS C. McMURTRIE, New York.

In every community there are a large number of crippled children who because proper care is not provided for them are unable to take a useful part in activity or work of any kind. The crippled child who is not able to get about easily is denied the privileges of the public school and grows up in comparative ignorance unless the parents are able to make exceptional provision.

The deformities responsible for the crippled condition are often not acute and so do not receive the hospital treatment they deserve. Furthermore the term of treatment generally lasts over a long period such as the average institution is not able to give in view of the other acute demands made upon it.

Orthopedics is a specialized branch of surgery and adequate attention can generally be secured only in the larger centers of population. Thus patients living in the country or in small places are often likely to go unattended or at least to have their deformity so develop that it is no longer susceptible to effective treatment and cure. To gain the best results cases should be taken in hand early when the chances of recovery are infinitely greater.

Other classes of the handicapped are fairly well provided for in most communities. The blind, the deaf, the mentally defective—for all these there are institutions adequate, or nearly adequate, to the needs. But up to the present time the needs of the crippled child have not been properly provided for. From the economic standpoint only the provision of proper care is expedient because in many cases complete cures can be effected and in others the children can be furnished such primary and industrial educational facilities as will enable them to become useful and self-supporting members of the community. Without the provision referred to a great many would be helpless dependents for life.

It is interesting to note that several states of this country have made legislative provision for crippled children and established institutions where they could be given both surgical and educational

advantages. In this work the United States occupies a unique position. The first state to take such action was Minnesota, which in 1897 established a hospital and home for crippled children. The State of New York followed the example and established the New York State Hospital for the Care of Crippled and Deformed Children in 1900. Massachusetts started a similar institution, the Massachusetts Hospital School, in 1906, and several other states have taken some action in behalf of their cripples. The results of these institutions have been excellent. There have been found a large number of crippled children in each of the states named who were in need of the care provided and who have since profited by it.

It is important that this system of care should be extended to other localities. As yet the State of California has taken no such action and I venture to suggest to the physicians of that state the desirability of such a move. Such institution would offer the advantages an average hospital would be unable to provide and would obviate the neglect of education so often coincident with protracted treatment. The service which could be rendered by a state hospital school would be valuable and it would prove indispensable to the physicians interested in the welfare of this class of handicapped children.

SOCIETY REPORT

CALIFORNIA ACADEMY OF MEDICINE.

The regular monthly meeting of the Academy was held in the Library of the San Francisco County Medical Society on Monday evening, May 27th. The following scientific program was given:

1. Puerperal Infections. A Clinical Study of Twenty-one Cases. A. B. Spalding. Discussed by Harold Brunn and H. J. Kreutzmann.

2. The Use of Citrate Solutions in the Prevention of Peritoneal Adhesions. Saxton Pope. Discussed by W. I. Terry, L. Floesser and J. J. Hogan.

3. Clinical Demonstrations (Illustrated by Lantern Slides). H. T. Morrow. Discussed by Saxton Pope, T. C. McCleave and H. E. Alderson.

Refreshments were served at the close of the meeting.

No meetings of the Academy will be held during June and July.

BOOK REVIEWS

State Board Questions and Answers. By R. Max Goepf, M. D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Second Revised Edition. Octavo volume of 715 pages. Philadelphia and London: W. B. Saunders Company, 1911. Cloth, \$4.00 net; half morocco, \$5.50, net.

The main purpose of this volume is to provide a convenient compend for the use of those who wish to prepare themselves for State Board Examinations, and it will be found very helpful. The additions to this second edition include principally questions of serum and vaccine therapy; the recent work in the serum diagnosis and treatment of syphilis; the new heart physiology; the myogenic theory and graphic methods of studying the phenomena of the circulation.

How to Collect a Doctor Bill. By Frank P. Davis, M. D. 98 pages. Cloth bound. Price \$1.00. Physicians Drug News, Publishers, Newark, N. J.

This little volume contains a mine of humor. A few excerpts will suffice. Here is an unfortunate colleague who can't collect \$10.00 for his services

in seeing a babe to the other side of the Styx. He writes to the un-remitting parent: "Dear Sir: I am very sorry that you did not see fit to reply to my letters of July 15 and August 15. . . . I have often wondered how I would feel if I knew my little child was up in heaven, looking down at me with her angelic eyes, wondering why I did not pay the doctor who worked so hard all night to give her ease and to keep her with me. . . ." Further on we see that in trying to collect a bill "The personal matter must be fitting to the case. If your patients do not die, you might speak of 'the innocent little babe who will grow up into womanhood unpaid for.'" There's some fun in being a patient and not paying your bills if these are the kind of letters you are to receive. The book will help to pass a merry quarter of an hour. L. E.

Dawn of the Fourth Era in Surgery, and other short articles previously published.

By Robert T. Morris, A. M., M. D., Professor of Surgery in the New York Post-Graduate Medical School and Hospital; Member of the American Medical Association, the New York Academy of Medicine and other national and local societies. Philadelphia and London: The W. B. Saunders Company, 1913.

This volume consists of a collection of articles which have already appeared in the medical press. The author decided to collaborate the articles in the form of a small book, as the requests received by him for reprints became so numerous. The volume consists of, in all, 143 pages, divided into twelve or more chapters. In his work Dr. R. T. Morris deals with such subjects as "The Hand of Iron in the Glove of Rubber," "The Advantages of Expeditious Surgical Work," "My Change of View in Appendicitis Work," "The Dawn of the Fourth or Physiologic Era in Surgery," and "The Choice of Procedure in Cases of Loose Kidney."

Pathological Technic. Included Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. Mallory, M. D., Associate Professor of Pathology, Harvard Medical School, and J. H. Wright, M. D., Director of the Pathological Laboratory, Massachusetts General Hospital. Fifth Revised Edition. Octavo of 507 pages. Illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$3.00.

"Infection and Immunity." By Charles S. Simon, B. A., M. D. Published by Lea & Febiger, Philadelphia and New York, 1912.

The avalanche of new names and theories in the field of Immunology and Bio-chemistry—the readjustment of old theories to conformity with recent investigations—has more or less left the practitioner in a state of bewilderment. New phases and applications of "Infection" and "Immunity"—the broadening field and newer nomenclature—"Chemotaxis," "Opsonins," "Allergia," "Antigens," "Cytolysins," "Anaphylaxis," etc., convey to the physicians but vague, misunderstood phenomena. The general use of these reactions in diagnosis and in treatment demand at any rate a fundamental conception of principle in the former instance, and the ability to wield with finesse a two-edged sword in the latter. Simon's work is distinctly elementary and in this is decidedly deserving of merit. The practicing physician would do well to re-stock his knowledge of immunity by leisurely absorbing its contents. My only regret is that the writer did not present his work in a less didactic manner. The presentation of the evolution of Immunology, both in a chrono-

logical and suggestive sense, would have been a well rewarded placebo.

E. A. V.

Diseases of the Heart and Aorta. By A. D. Hirschfelder, M. D., Associate in Medicine Johns Hopkins University. J. B. Lippincott Co., Philadelphia. Price \$6.00.

It is particularly gratifying to receive another edition of this important book. The first edition became so well known and was found so useful by practitioners, students, and laboratory workers that it is hardly necessary to describe the second edition more than to say that it shows evidences of having been thoroughly gone over and amplified in accordance with the latest additions to this field of knowledge. For example, there is a concise but complete and extremely lucid description of electrocardiography, including the underlying physics, the physiology and the applications; the modern more exact indications for digitalis medication; the use of oxygen, carbon dioxide, rarefied air, etc. Few books on special subjects enter fields where there is more new but scattered knowledge which needs to be brought together, and still fewer books do this so clearly and concisely and with so much authority. Bibliographies are given. Illustrations are plentiful and mostly original. Throughout the volume shows evidences of an enormous amount of painstaking work, and it forms one of the most valuable volumes on a reference shelf.

E. S. K.

Solidified Carbon-Dioxide. By Ralph Bernstein, M. D. Published by Betz, Hammond, Ind., 1912.

In this little book Dr. Bernstein has presented the subject of the utilization of carbon-dioxide snow in dermatological conditions in an interesting and comprehensive form. The author is to be congratulated on the admirable results he has obtained by the use of the remedy. The résumé of the factors concerned in the utilization of the carbon-dioxide are comprehensively explained and the description of the method of preparation is concise and complete. Dr. Bernstein has obtained remarkable results in the treatment of epitheliomata but I believe a more safe and rapid measure could be found in the use of the high-frequency spark.

The end results in the treatment of angiomata are satisfactory, but in most instances the rapidity of the cure could be enhanced and the inconvenience to the patient minimized by prolonging each application of the snow.

The temporary freezing produced by carbon-dioxide has little, if any, bactericidal action and, therefore, would theoretically be of little value in the treatment of carbuncles, which Dr. Bernstein advocates. The freezing lowers the resistance of the tissues and in the presence of bacteria offers an admirable field for infection. In the treatment of this class of cases it would seem that the Bier hyperemic treatment would yield better results. The satisfactory results produced by the use of carbon-dioxide in the treatment of keloid, leucoplakia, lupus erythematosus, nevus lipomatodes, lupus vulgaris and xanthoma tuberosum would warrant us in considering this the elective procedure in these conditions. In the treatment of verruca vulgaris more rapid and equally satisfactory results can be obtained by the use of high-frequency or electrolysis.

Dorland's American Illustrated Medical Dictionary.

A new and complete dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Medicine, Nursing, Biology, and kindred branches; with new and elaborate tables. Sixth Revised Edition. Ed-

ited by W. A. Newman Dorland, M. D. Large octavo of 936 pages, with 323 illustrations, 119 in colors. Containing over 7,000 more terms than the previous edition. Philadelphia and London: W. B. Saunders Company, 1911. Flexible leather, \$4.50 net; thumb indexed, \$5.00 net.

Dorland's American Illustrated Medical Dictionary needs no introduction to the American profession. It is neat, well illustrated, concise in its definitions, and contains all the terms one is likely to meet in a life-time. The fact that over seven thousand new terms have been added is assurance that it is keeping abreast of the times.

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M. D. Second edition, 338 pages. Royal octavo, 172 illustrations, including four colored plates. Price \$4.00.

This is the second edition of Hirschman's work, the first having appeared four years ago. It is a work written for the general practitioner who so often is unfamiliar with the special methods of examination and treatment of rectal conditions, and who frequently treats patients of this type without much satisfaction to them or to himself. Symptoms, methods of examination and office treatment are especially considered. The chapter on constipation with its excellent radiographic illustrations is clearly written and should be helpful to the average practitioner. The author advocates the use of alboline, and curiously enough, although there is added a chapter on stool analysis based on the work of Schmidt and Strassburger, no mention is made of regulin (agar agar and cascara) introduced by Ad. Schmidt, nor of oil enemas introduced by Kussmaul and Fleiner and so frequently used by the gastro-entérologist.

R. B.

Sexual Impotence. By Victor G. Vecki, M. D., Consulting Genito-Urinary Surgeon to the Mount Zion Hospital, San Francisco. Fourth edition, enlarged. 12mo of 394 pages. Philadelphia and London: W. B. Saunders Company, 1912. Cloth, \$2.25 net.

No subject in the whole realm of medical science requires for its authoritative discussion such a wide personal experience as sexual impotence. The correct interpretation of an underlying organic or functional lesion of the sexual sphere is only possible on the basis of a thorough knowledge of the border-line conditions (neurological, urological, etc.). Considering, furthermore, the many divergent opinions regarding the efficacy of the various therapeutic measures advocated for the relief of sexual impotence, a somewhat rational treatment seems to be feasible only at the hands of an experienced and well-trained observer, like the author of this admirable book. Refreshing is the open, candid and fearless manner in which he deals with his delicate subject, the mere mention of which is more or less abhorred in a country still saturated with insular prudishness and bigotry. Characteristic in this respect is the introductory sentence: "No one denies that the sexual function is of very great consequence to the individual as well as to society in general, although one does not care to make this a subject of conversation."

Vecki's book does not represent a compilation of the work and views of others, it gives, on the contrary, an independent view of the question of sexual impotence from his own standpoint, which, in many instances, is entirely original. The great value of the book, in other words, lies in the fact, that it contains the author's personal observations and views on this intricate subject, which he offers in his own inimitable and tem-

peramental way. This factor, while not detracting from the scientific value of the book, differentiates it favorably from the many dry treatises of similar nature.

After a brief review of the anatomy of the sexual organs, the second chapter is devoted to the physiology of the sexual act, containing many valuable new facts and the author's personal observations upon the microscopic aspect of the sperm and its main constituent, the spermatozoa. More than half the book's space is devoted to the fourth chapter dealing with the various forms of impotence, while in the remaining chapters its diagnosis, prophylaxis and treatment are discussed. This rather dogmatical division of the material does not permit of a good survey of the whole subject nor of quick information upon a point in question and would certainly be benefited by some change or modification in future editions.

While speaking of changes, the hope is expressed that a number of orthographic errors will be revised in the future, which are particularly glaring in names of distinguished foreign authorities (Albaran, Lohenstein, Ultzman, etc., instead of Albarran, Lohnstein, Ultzmann). Almost unpardonable in a book written by a graduate of a German-speaking university is the misspelling of the discoverer of water-Endoscopy, who instead of the good German Goldschmidt is persistently dubbed "Goldsmith."

Against these few minor discrepancies, most probably due to a mere oversight, figure the many and notable merits of the book. The author's views on important questions like sexual excesses, onanism, deficiency or correct guidance as regard sexual life, etc., are sane and moderate. His knowledge upon aphrodisiacs testifies of large experience and sound criticism. Statements like "the further we advance in the study of the deep urethra and the pathology of the various sexual appendages, the less frequently we see cases of genuine sexual neurasthenia," and "there are so many phenomena of sexual neurasthenia that one life is too short for the study and observation of them all," prove his good judgment and unusually wide experience and will be corroborated by every co-worker in this delicate and difficult work.

In harmony with the author's genial temperament a certain buoyancy and optimism pervades the book that communicates itself to the reader; it is interesting, attractive and instructive from cover to cover; it should be found in the library of every practitioner who wishes to be informed upon the pathology and rational treatment of sexual impotence.

M. K.

NO MEDICAL SCHOOLS.

The Homeopathic Medical Society meeting at Los Angeles made complaint that the state legislature had been dominated by a rival school of medicine. The reference of course was to the medical practice act. This is the complaint always made against any medical practice act which treats medicine as a science, rather than as a religion, but it seems somewhat curious to hear it from homeopaths. The medical practice act of California does not require any homeopath to take examinations in homeopathy, or any "allopath" (if there is any such thing), to take examinations in "allopathy," or in fact, any medical practitioner to take an examination in any subject on which there is any difference between schools. The regular physician may give one grain or one-tenth of a grain of calomel and the homeopathic physician may give one hundred

thousand trillionth of a grain of the same substance, but the medical examination of California does not test either of them on either of these methods. What it does require is that both of them shall know enough chemistry to know what calomel is made of; shall know enough anatomy to know where it goes when it is swallowed; shall know enough physiology to know the functions of the organs through which it goes; and shall know enough pathology to know what is the difference between the functions of those organs when they are diseased and when they are in health. If they are also required to know something of bacteriology, that certainly is not inconsistent with the Hahnemann doctrine that all diseases are forms of the itch, for if that doctrine has any meaning at all it can only be interpreted in terms of modern bacteriology.

The whole purpose of modern medical requirements is simply to demand that those who wish to practice the healing art shall be sufficiently trained in the fundamental sciences. Homeopaths are so trained, and the graduates of their schools are able to pass an examination on these sciences. There is nothing in the medical practice act to interfere with an educated man of the homeopathic or any other school. The incidental fact that when physicians are educated they practice all very much the same sort of medicine, and that the schools disappear, is not the fault of the law, and is not regarded by any educated man as a fault.—Fresno Republican.

TO OUR ADVERTISERS.

You must bear in mind, gentlemen, that it takes advertising to get business and more advertising to hold it. The larger you become, the harder you must fight to hold your lead. Overconfidence is one of the greatest enemies of both individuals and corporations. Shortly before Napoleon went down before Wellington he thought he was invincible.—Printers' Ink.

NOTICE.

A recently published medical book, found on street car, has been left in the office of the State Journal. Owner may have same by proving property and paying for this ad.

NEW MEMBERS.

Tillotson, C. A., Dinuba, Cal.
Burke, W. P., Redlands, Cal.
McConnico, San Bernardino.
Beeson, Henry O., San Bernardino.
Axtell, S. B., San Diego.
Ryan, L. R., San Diego.
Marsh, O. G., San Diego.
Weinberger, Joseph, San Diego.
Crawford, W. W., San Diego.
Coburn, E. S., National City, Cal.
Ringolsky, Sol., San Francisco.

DEATHS.

Koenig, Theodore T., Portola, Cal. (Died in San Francisco).
Wickman, W. J., San Rafael.
Gosewisch, W. R., Los Angeles.
Ladd, Ira Bourland (Died in San Francisco).

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be
Typewritten.

Notify the office promptly of any change of address, in
order that mailing list and addresses in the Register may
be corrected.

VOL. XI AUGUST, 1913. No. 8

EDITORIAL NOTES

THE MINNEAPOLIS MEETING.

The June meeting of the American Medical Association at Minneapolis was a distinctly successful one. The attendance was good—something over 3,000, and the programs were excellent and well carried out. Holding the sessions in the buildings of the State University made it quite convenient for one to attend such sections at such times as the program arranged made it interesting for him, with the minimum of inconvenience. The weather was uncomfortably hot, but somehow everybody managed to worry through the week; occasional thunder storms cleared the air and for the time being reduced the temperature. The officers elected for the coming year were as follows: President-elect, Victor Vaughan, of Ann Arbor; First Vice-President, W. P. Conway, Atlantic City; Second Vice-President, Frank C. Todd, Minneapolis; Third Vice-President, Lillian South, Bowling Green. For Trustees, Thomas McDavitt, St. Paul, was elected to fill the unexpired term of Dr. Daugherty, and Dr. Dowling of Louisiana was elected in place of Dr. Cantrell of Texas. The Association went on record as being emphatically opposed to fee-splitting and endorsed and encouraged clean advertising and clean reading matter in newspapers. Rather an unusual feature of the meeting was the employment, by a local paper, of medical men to write up the proceedings in the sections each day, so that physicians could get some intelligent idea of what had really happened and was planned. The next meeting will be held at Atlantic City at a time to be chosen by the Board of Trustees; it will be announced later.

DRUGGISTS' BREACH OF FAITH.

So many physicians have been guilty of accepting so-called commissions from druggists to whom they send their prescriptions, that any attempt on the part of a medical man to direct the steps of a patient toward any particularly reliable pharmacist arouses a sneaking suspicion in the mind of the patient that the doctor is going to get a "rake-off." It is probably true that this evil has greatly diminished of late years and it is devoutly hoped that it will soon cease to exist. There is no real reason for it and the sooner the public realize that we as an organized profession are sending them our bills for services rendered on our own billheads, and not under the names of druggists, opticians, truss makers, etc., the sooner will we have their respect, and the greater will be our power to properly direct their footsteps.

We know of instances where certain drug stores have been found substituting less expensive drugs in physicians' prescriptions, first to increase their own profit, and secondly to acquire a reputation for "cut rates." If we warn the average layman against such stores, he thinks we are not getting our percentage and are therefore knocking. It is only when he gets "stung" once or twice in finding himself poisoned or else that the medicine is not giving the expected results that he learns his lesson.

Perhaps the public will, however, realize that it is entitled to the same protection at the hands of druggists in the matter of professional secrecy as it demands of the physician. Not even our most daring Dr. Chenichten Jordlin would go and advertise like an automobile agency somewhat as follows: "Do not be deceived by other quacks, come and have a talk with me right away. Free demonstrations of our latest methods. Goat lymph, phylacogens, 606—the new German remedy, and 914 the ultra new, injected with our 1914 model syringes. We have during the past month injected Mr. X. of the firm of X. & Y.; Mrs. A., past president of the Decade Club; Mr. Soup, of the firm of Soup and Nuts. Ask any of these or a thousand others whose names we will publish shortly as to our reliability."

And yet, these are practically the tactics employed by some druggists located in the shopping district of San Francisco within the past few weeks. These stores have seen fit to advertise by placing in their show windows hundreds of prescriptions bearing the signatures of our best known physicians and surgeons, probably to lead the credulous to believe that these medical gentlemen placed their greatest faith in these very stores. However good an advertisement this may be, we doubt whether Mrs. W. would enjoy having her friends see that on April 1st her gynecologist prescribed formalin douches and Neisser bacterins, or that Mr. J. would care to have everybody see that his doctor gives him mercury and potash, though no doubt it might be of some good to the patient to have his friends tell him that the doctor who had ordered him to take "Marmola" was probably an ignominium!

It may be that once a druggist fills a prescrip-

tion this becomes his property; that a prescription is simply a letter to the druggist. At any rate it would seem to us that it behooves the doctor to warn the patient as to the dangers he incurs in leaving these letters in unscrupulous hands.

Such acts as these are bound to bring medical men to consider the advisability of officially endorsing drug stores which are ethical and to blacklist those that are not.

ETHICAL PROPRIETARY AND "PATENT MEDICINE," ALL IN ONE.

The favorite way—because the most economical—of introducing a nostrum to the public, is first to exploit it to the medical profession. This was the plan used abroad in introducing "Sirolin," the orange-flower flavored syrup of potassium guaiacol sulphonate, the essential constituent of which, the potassium guaiacol sulphonate, had first been popularized to the medical profession under the name "Thiocol."

In this country also the substance itself, Thiocol, was first exploited to the medical profession and as a strictly ethical preparation was admitted to New and Nonofficial Remedies some years ago. More recently Thiocol was introduced in the form of a syrup, Syrup Thiocol, Roche, and this also in due time was admitted to New and Nonofficial Remedies. Following the European plan Thiocol is now being put out in this country in the form of Sirolin by the "Sirolin Company." While under the latter title it is also being circularized to physicians, it is plainly intended for the public, for an advertisement taken from the New York Evening World reads:

"It is wonderfully useful in treating consumption. It absolutely prevents the occurrence of it."

"Your physician knows Sirolin."

"Sirolin is a physician's remedy—not a patent nostrum."

Holding that the exploitation of Thiocol is a public menace, the Council on Pharmacy and Chemistry has announced, very properly (*Jour. A. M. A.*, June 21, 1913, p. 1974), that the acceptance of Thiocol and Syrup Thiocol, Roche has been withdrawn and that these articles will not be described in future editions of New and Nonofficial Remedies.

As Thiocol after having been introduced to the medical profession was then put out in the form of a syrup, so the opium preparation, Pantopon, also manufactured by Hoffmann-LaRoche, after having been liberally advertised for a number of years, is now being offered in the form of a syrup of Pantopon. Inasmuch as the Thiocol syrup is now being advertised to the public we are wondering if this firm will follow a similar course with its Pantopon syrup. According to a German advertisement "Pantopon-Syrup, Roche" has the advantage that it may readily be given to children and thus it would find little difficulty in qualifying as a "baby-killer."

THE NEW LAW.

Some of the critics of the strictures which the JOURNAL passed upon the legislature for enacting the abortion which has become the new medical law of this state—or will become the law on August 11th, 1913, have asked many questions about the law and have asked how the JOURNAL can help to make the best out of it. That last is a pretty hard question. If the governor sees fit to appoint good men, they can do much good; the goodness or badness of the law rests largely with the men who are to administer it. But it is all absolutely new and how it is to be construed no one can say until its various provisions have been passed upon by the courts. The old law was not perfect but it had the advantage in this, that all of its provisions except the one relating to Army and Navy men, had been passed upon by the courts and we knew exactly where we stood. The new law provides for license without examination of any one who has a license obtained on examination in some other state, upon complying with the rules which the board shall make; but the rules cannot be made until the new board is appointed and has got to work. The law does not provide for reciprocity; the word does not appear in the act. It also provides for a special examination for all those who were licensed in other states prior to 1901, but apparently it is so drawn as to exclude absolutely every physician who had less than a four-year course, no matter when he graduated. This would exclude nearly every graduate prior to 1891 and a very large number of those graduating between 1891 and 1906. This point is, however, uncertain and must remain so until the courts have passed upon it. There is mighty little "helping" that we can do except to help build up our societies and improve the character of the members so that membership will become a sort of "hall mark" in the eyes of the public; strive to make membership in a county society take the place of a license, in the public mind.

SHALL WE BE SILENT?

Two members of the Society have written to the editor expressing disapproval of the editorial notes in the JOURNAL which were in the nature of criticism of the intelligence or the sanity of the last legislature. Is it the desire of the members of the Society that its JOURNAL shall be a spineless thing? Shall we keep silent when we see wrong things being done or shall we go on record as not approving them? Shall we tell the truth about things even though it may hurt somebody's feelings, or shall we just go shilly-shallying along and say nothing but general platitudes? Who wanted a new medical law? What elements were back of it? (a) The Governor, because he's playing cheap politics and has been from the start and because he's playing with the horde of fanatics that infest the South; (b) the aforesaid horde of fanatics who think that every one should be permitted to practice medicine; (c) those regulars and others who are connected with medical schools that do not

want a decently high standard or do not want to teach as they should; (d) a large number of medical men who could not pass a fair examination and wanted some way in which they could slide into California by a side door. These are the elements that fought for a new medical law—and got it, just as I said last year that they would get it in spite of everything that we could do in the way of common sense educational effort to the contrary; the wave of fanaticism, of unrest, is so strong that reason can not oppose it; it will have to take its course and eventually die down. Thinking men in all walks of life see this condition of unrest and are studying it most interestedly. Much harm will be done and, of course, some good will be done. Every law that was made by the last legislature is not bad—but most of them are! No one could argue with those fool legislators; the really able ones were playing the usual game of petty politics and log rolling and using the fanatics to their entire satisfaction. Why should we avoid telling the truth about it? The noble legislators abolished a standard that the Supreme Court of this State has said was a wise one; was that good? They were instructed to pass a "reciprocity amendment" and the word "reciprocate" does not appear in the new law! Any one in any other state may come here under certain conditions, but there is nothing to compel or secure similar treatment from that other state! Is that wise, is that good? Is it worth while being polite to crazy men or fools on the assumption that they may get over being crazy or foolish? Shall we, as the organized representatives of a learned profession, supposedly composed of intelligent men, sit quietly by and see fanatics and worse doing harm, passing bad bills and making crazy laws, and say nothing? What are we here for? If we say nothing may it not be fairly assumed that we are lacking in sufficient intelligence to see that a wrong thing has been done? There are some good things in the new law; there had to be; but they are buried deep in the mess of bad and fool things in it and it will take years of litigation to find out if some of the supposedly good things are constitutional! We, as a profession and as a Society, are not afraid of other things; why should we begin to be afraid of telling a little truth?

PAID LOBBY REJECTED!

One of the most important actions of the House of Delegates was the rejection of the Murphy-Evans idea of maintaining a paid lobby in Washington to promote public health legislation and particularly an Owen bill; one cannot say *the* Owen bill because there have been such a variety of Owen bills and there is every reason to believe that there will be more. Nothing that has happened to the Association in some years has hurt it so much, in the eyes of the public, as the activity of a former representative of the Association in Washington in the winter of 1909-10, in endeavoring to influence legislation in favor of the then

Owen bill. It was a lobby and was classed by all laymen in the same class with any other lobby and the general impression was that there must be "something in it" for the Association if they were willing to spend this money to keep a lobby in Washington. This action of the House of Delegates absolutely endorses the policy of the Board of Trustees which was formulated in 1910 when a resolution was introduced instructing our representative to leave Washington; the resolution failed of passage by one vote, but the policy was adopted and the wisdom of it has now been made clear. The whole thing is buried in the minutes of the meeting, but in brief it may be stated as follows: Murphy as Chairman and Evans as Secretary of a Committee on National Health Legislation (a committee that had been abolished by the House of Delegates but was kept alive through a trick) presented an alleged "report" of the committee of nine; the "report" was signed by only four of the nine and only two of these four actually signed their own names to it, the other two being initialed "W. A. E." This "report" demanded the keeping of a lobby in Washington, abused the Trustees unmercifully for not appropriating money during the past two years for that purpose, and generally attacked the Board for its policy of education rather than lobbying. The allegations in the "report" were carefully considered by a reference committee and the report of the reference committee, which report endorsed the policy of the Trustees, deplored the lobby idea and recommended that the Murphy-Evans committee be discharged, was adopted practically unanimously; there were but two or three dissenting votes that could be heard.

THE COLLEGE.

The JOURNAL has been asked by a number of our readers to give some serious information in regard to the proposed "College of Surgeons" and the method of its forming. It grew out of the clinical congress of surgery held in New York last year. These clinical congresses were started by Dr. Martin, editor of *Surgery, Gynecology and Obstetrics* and a large number of doctors attended them, as clinics are always attractive and some of the most prominent surgeons in the country participated. The idea of forming a "college of surgeons" was sprung at the New York congress and met with the approval of the mob of those in attendance. It is said that a corporation was then formed, of which Murphy and Martin were two of the five directors, and the proposed name was thus legalized. The scheme was talked over all over the country quite naturally and a meeting was called to take place in Washington in May. It was generally supposed that this meeting was for the purpose of discussing the scheme and determining whether or not it was good and practicable, but the discussion part of it was quite an unnecessary idea; it had all been carefully arranged before hand. Dr. Ed. Martin took the chair, at the Washington meeting, and Dr. Franklin Martin was made secretary. Dr. Montgomery

had been given a typewritten set of resolutions by Dr. Ed. Martin and these were promptly introduced. They called for the adoption of an order of business, reading of the proposed by-laws by the secretary and their adoption (or consideration) section by section, nominating committee, elections, etc. In spite of this resolution the chair declared the by-laws adopted as read in whole; they were not read section by section and no one had a chance to discuss them at all. A motion was made to have the chair appoint a nominating committee of three; an amendment was made to this, to have the nominations for the nominating committee made from the floor. This amendment was seconded, but the chair declared it "inexpedient" and then, without even putting the motion, announced that the motion to appoint a nominating committee of three was carried! This method of procedure certainly has the merit of saving time and words! Thus the "Great College" was born! Now the question arises, what good will it do? Every one licensed to practice medicine is or may be a surgeon; he has as much right to do surgery as the biggest, and a good many of him is doing it and is going to continue. The only people who seem to be threatened with an examination are those who may come along hereafter,—and they do not need it so much as some of the founders! It is a personal and proprietary eruption into the domain of medical education and comes just at a time when proprietary medical schools are decreasing. Is it not another evidence of this unrest, together with the widespread desire to belong to something; to be "in" something that the other fellow is "out" of? It has yet to be shown wherein the College can do or proposes to do or has planned to do the slightest good except for permitting the use of some letters after one's name! And perhaps offering theoretical encouragement for one to study a little more and be more of a surgeon; but a real surgeon is doing that anyhow!

PREACHING ADVERTISING HONESTY.

A most significant feature of the annual convention of the advertising men of the country recently held in an eastern city, was the fact that on a Sunday a member of the Ad Association appeared, on invitation, in nearly every church in the city and delivered an address in the nature of a prayer for honesty in advertising. Little over ten years ago the STATE JOURNAL began its existence with the statement that it would, so far as humanly possible, accept only honest advertisements and would be responsible to its patrons for the character of the advertising. It was the only publication in the United States to take that stand and a lot of people laughed at us for doing it. The meeting of the Ad Association referred to is sufficient comment on the change that has taken place in these few years. It is a disgrace to us as a liberal profession of educated people that so many of our medical (?) journals are supported by dishonest advertising and that distinguished members of our profession will contribute to publications that are dishonest in their advertising pages.

Of all people, the physician is supposed to be the most honest and upright; he is supposed to be above reproach and to be the sort of man any one could depend upon for honest advice at any time; and yet, as a profession, we permit to exist publications that are kept alive only by the money obtained from fraud and deceit. How can any self-respecting physician contribute to the support of such publications as the Pacific Medical Journal or the Southern California Practitioner?

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ORIGINAL ARTICLES

GALL-TRACT DISEASE—SOME CLINICAL FEATURES FREQUENTLY OVERLOOKED IN ITS DIAGNOSIS.*

By C. M. COOPER, M. D., San Francisco.

Gall-bladder or gall-duct colic is essentially epigastric in origin and radiates upwards. With a stone in the cystic duct, the intense pain may be referred to the right of the lower dorsal vertebrae, and since a block in the cystic duct does not cause jaundice, the colic may be wrongly considered of renal origin. When the pain is epigastric, it may occasionally radiate to the legs or to the left arm. In the former instance septic thrombi must be searched for in the leg veins, in the latter it is not improbable that the gall-bladder colic through an induced blood vessel constriction has led to an angina pectoris. Though the intense pain is the essential feature during the paroxysm, a temporary paralysis or an attack of tetany may occur, or death may take place from cardiac inhibition, or from rupture of the gall passages.

Occasionally in acute cholecystitis, the pain may shoot down into the right iliac fossa and be definitely localized there. Tripiet and Parrot suggest that in these cases the local peritonitis set up by the infective process involves the serous coat of the appendix. Acute appendicitis and acute cholecystitis may occur together, and the unwary may ascribe all the symptoms to the involvement of one of the affected organs. When the right lobe of the liver is prolonged downwards into the iliac fossa, the gall-bladder approaches the appendix, and a gall-bladder infection may then strongly suggest appendicitis unless care is taken to determine the course of the lower liver border. Similarly when the appendix is situated high up, an appendicitis may simulate cholecystitis, for in both anomalies the pain, tenderness and swelling are located at the unusual site of the involved organ.

In general enteroptosis when there is a descent and rotation of the liver carrying with it the gall-bladder, the common bile duct remains behind more or less fixed. Consequently a kinking of the cystic common duct junction may result, and thus gall-stone colic-like attacks occur, and it is not improbable that many of the epigastric pains complained of by enteroptotic patients thus originate. Such a hindrance to the bile outflow leads in its turn to calculi formation, so that in patients of this build calculi are common.

It is said a movable kidney may come to lie across the neck of the gall-bladder, and so be responsible for similar attacks, but it is a question whether this does not result from the enteroptosis of the gall-bladder rather than from the anomalous position of the kidney.

Gall-tract pain is sometimes spontaneously made worse by body movement or by coughing or deep breathing. The association of cholelithiasis with a movable kidney may be responsible in some instances, but more commonly peri-cholecystitic ad-

hesions. When either the blood or bile outflow from the liver is hindered or prevented, a stretching of the liver capsule takes place, and pain and tenderness over the entire liver are common findings. Any movement that tends to produce dyspnea, or to still further hinder the outflow of bile, may call forth or exaggerate the pain, and thus pleuritic changes or arteriosclerotic lesions be suspected when either the heart or gall-tract is primarily at fault.

We have spoken of the occurrence of pseudo gall-stone colic in enteroptotics and in people with a floating right kidney. Similarly histories seemingly typical of gall-stone colic may be related by patients in whom we can later find nothing wrong with their main biliary system. This may occur in patients with hydatid or pancreatic cysts, and in people who are habitual morphine users. Further tabetic pains may imitate in their intensity and location gall-stone colic.

Occasionally acute gall-tract colic may give rise to a clinical picture strongly suggesting the perforation of a hollow intra-abdominal viscus. Thus shock, intense pain, a board-like rigidity of the muscles of the anterior abdominal wall, vomiting and a stilling of all intestinal movements may occur, and twice in one patient I have recommended, as the safer procedure, an immediate opening of the abdomen when the later history showed that no perforation had occurred.

In gall-bladder and gall-tract infections, as in infections elsewhere, the resultant symptoms depend upon the nature and virulency of the infection, and the reaction of the patient.

The occurrence of malaria-like intermittent chills, fever and jaundice in gall-tract infections has long been a matter of common medical knowledge. Not so well recognized is the fact that the jaundice may be absent. But since no malaria parasites are to be found, and since quinine has no specific effect upon the fever, it should take little time to eliminate malaria as a possible cause. Mistaking malaria in its turn for a gall-tract infection is not so likely to occur. However, in one instance seen in consultation this had happened, though a stained film showed many plasmodia. The presence or absence of a leukocytosis must not in such cases be looked upon as a distinguishing diagnostic feature.

If ulceration through the gall-bladder has occurred with resultant formation of one or more abscesses, pyemic symptoms occur. The history is all important in determining the probable site of the initial infection.

Syphilis of the liver with perihepatitis may give rise to symptoms suggestive of a gall-tract infection, but a careful correlation of clinical and laboratory findings should prevent error.

An infection of the gall-bladder may give rise to a continued fever which in its course and duration may resemble a tubercular infection or septic endocarditis. This may occur with an almost complete absence of local symptoms as happened with one patient seen in repeated consultations with Dr. Jellinek in whom sub-hepatic tenderness intensified

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

by inspiration gave a clue to the site of the infection. In such infections a slackening of the muscle rings round the heart-valves may occur, and so functional murmurs be produced, this still further increasing the diagnostic difficulties.

From the primary gall-bladder infection a true secondary endocarditis may arise, and the primary source repeatedly miss detection unless it be assiduously sought for.

Occasionally unusual infection symptoms may occur, thus in one patient marked delirium was an accompaniment of a gall-bladder infection; another patient seen in consultation with Dr. Harry Wiel had suffered from multiple attacks of marked angioneurotic edema, the causal infection seemed to be of gall-bladder origin, and since the removal of gall-stones and draining of the gall-bladder no such attack has occurred.

With much pain from a gall-tract infection, an inhibition of the movements of the right diaphragm may occur. This in its turn leads to a deficient entry of air into the lower right lung lobe with resultant dulling of the percussion note and lessened intensity of the respiratory murmur. Thus the presence of a supra-diaphragmatic lesion may be suspected when in reality the trouble is below.

A sub-diaphragmatic abscess may occur secondary to gall-tract infection and ulceration. This leads to a constant high position of the diaphragm. In my experience an edema over the lower right ribs has been of much assistance in the diagnosis of these abscesses. Not infrequently an effusion takes place into the pleural cavity above, and one may draw off serous fluid from the pleural cavity, whilst the real trouble is due to an abscess lying below the diaphragm. Such an abscess cavity does not usually contain air as often does a sub-diaphragmatic abscess secondary to perforation of a hollow intra-abdominal viscus.

As is well known, gall-tract lesions are usually associated with dyspeptic troubles and gastric distention, and this in turn may excite the appearance of cardiac extrasystoles. Further, since the gall-bladder receives nerve fibres from the vagus, it is quite possible that such extrasystoles may be more directly of gall-bladder origin, and my own observations would seem to show in a few instances a distinct connection between such heart irregularities and a faulty biliary apparatus.

A hyper or hypo-gastric acidity is a common accompaniment of a gall-bladder lesion. Occasionally a true achylia co-exists. If in such a case adhesions have formed between the pylorus and the gall-bladder, a delay in the stomach emptying time may be present. Thus a picture suggesting a pyloric carcinoma is produced. The history, the absence of occult blood from the excreta, and the dragged-over position of the pyloric portion of an otherwise undeformed gastric shadow as exhibited in a radiogram after a bismuth test meal will serve as helpful distinguishing features.

A history of gall-bladder trouble, a palpable gall-bladder and the absence of jaundice commonly signify a cystic duct block. However, a stone in the cystic duct may be so large as to compress the

common duct, and thus produce jaundice, whilst quite a large stone may be present in the common duct, and no jaundice be present or ever have been noted. Not much dependence can be placed, however, upon the testimony of untrained observers. Thus a little while ago a mother brought to see me her markedly jaundiced son whom she thought had been a little sallow for a day or so. Though markedly jaundiced, the stools were well colored and no bile was present in the urine. I had no doubt that the boy was in the clearing-up stage of a well-marked catarrhal jaundice, and yet the discoloration had been noted only a day or so previously.

Very rarely a large stone in the common duct may compress the portal vein, and so lead to an ascites. The clinical picture then suggests malignancy. A significant history and the absence of palpable metastatic growths demands in such cases a diagnostic incision.

Courvoisier's law has in my experience so many exceptions that in the presence of conflicting symptoms, and in the absence of a palpable growth or of occult blood from the stools, it is much safer to advise a diagnostic incision. Thus in a lady lately seen, the history was so significant that in spite of jaundice plus the presence of a markedly distended gall-bladder, it was evident that we were dealing with one of the exceptions to the law as was proven at the operation.

Very rarely a displaced gall-bladder may compress or distort the duodenum, as lately reported by Voorsanger and Levison, so that duodenal stasis with backflow of duodenal contents into the stomach and repeated vomiting occurs. The duodenal stasis should be readily recognized. The other findings may suggest its cause.

The occasional combination of gall-tract pains with hematemesis or melena suggests either an ulcerative lesion near the papilla of Vater or an aneurism of the hepatic artery.

Only infrequently is an enlarged gall-bladder visible. This may occur, however, in those rare cases in which the gall-bladder or even the gall-duct is found to contain some pints of fluid, or with less enlargement when the anterior abdominal wall is much thinned.

A patch of circumscribed skin edema in the gall-bladder region may be present in cholecystitis. It suggests pus formation and the presence of adhesions.

Ordinarily the enlarged gall-bladder is somewhat difficult to palpate, and bimanual palpation is not of much assistance. The difficulty is in part due to the fact that the vesicle rests against soft structures which give to the palpating hand as does the gall-bladder itself, unless the walls be thickened, or its contents under tension.

In those patients in whom the lower chest margin flares out, and who at the same time have a rigid rectus muscle, palpation is exceedingly unsatisfactory. If the physician will forcibly depress with his left hand the flared-out thoracic margin, insertion and origin of muscles are approximated,

and palpation with the right hand is rendered considerably easier.

In constriction of the liver as by corsets, the gall-bladder is pushed out of its fossa, perhaps by the elongation of Spiegel's lobe. It then hangs within the abdomen, and when distended is felt almost in its entirety.

I have twice palpated a gall-bladder in which I felt convinced a part of the vesicle lay between the diaphragm and the upper surface of the liver. The sensation was as if a roll of soft tissue lay in that position, it slipping under the finger. Such a condition may perhaps exist as a congenital anomaly, but seems to occur as a resultant of its being thrust out of its bed whilst at the same time its descent is resisted by the intestine below.

The gall bladder may possess a mesentery. If this be a stout one, and an obstruction to the bile outflow occurs, the far side may enlarge to a greater degree than the fixed side, and so a somewhat curved, sausage-shaped tumor be produced which feels like a segment of the colon. Indeed when the abdomen is opened the imitation may be very striking.

If in a patient with gall-bladder symptoms one can feel a markedly hard, pear-shaped, non-fluctuant mass in the gall-bladder angle, one's first thought is of a malignant involvement. Twice, however, have I known this finding to occur associated with the presence of a single large gall-stone which was tightly embraced by the gall-bladder walls. In one instance the abdomen would have been immediately closed had not the physician, having previous knowledge of such occasional findings, insisted upon an incision being made into the hardened mass. The walls of the gall-bladder should, in such instances, be carefully scrutinized, since sarcoma of the gall-bladder, a rare lesion, occurs as an infiltration of the wall, the cavity itself often containing gall-stones.

A Riedel's lobe may be mistaken on palpation for a distended gall-bladder. One should remember that a Riedel's lobe, in addition to having an edge, commonly broadens from its free margin toward the liver attachment, whilst a gall-bladder narrows. The two conditions may co-exist.

When the liver is much shrunken, the gall-bladder may be as high as the eighth rib, and so even when distended escape palpatory detection.

Many observers have reported instances in which on palpation gall-stone crepitus could be elicited. Personally I have never felt it, and in instances in which it was said to be present, I have been able to determine that the so-called gall-stone crepitus was in reality rib or cartilage creaking.

Percussion is of little service as an aid in gall-bladder diagnosis. Very rarely a tympanitic note may be elicited even on the faintest percussion over a tumor which to palpation is of gall-bladder origin. In such a case one must think of the possibility of a fistula having formed between the vesicle and some part of the alimentary canal.

Auscultation may in cases of pericholecystitis, as in inflammation of the liver capsule, reveal a respiratory friction murmur, and occasionally an en-

larged gall-bladder may be so displaced as to press upon the abdominal aorta, and thus in certain postures give rise to a systolic bruit.

In every case of internal intestinal obstruction, the possibility must be kept in mind that it may be due to the ulceration of a gall-stone into the duodenum or other part of the alimentary tract. If there be a previous history suggesting gall-stone disease, and more especially if there be pain and tenderness in the gall-bladder area which is suddenly relieved and then quickly followed by signs of obstruction, a diagnosis of gall-stone ileus is suggested.

That under such conditions such a diagnosis should be made, the patient relieved of her obstructive symptoms by medical treatment, a similar attack be prophesied, watched for, and again successfully treated, should be a source of pride to the physician conducting the case. Such a course of events took place in a patient under the care of Dr. Jellinek with the daily details of which I was familiar during its progress.

However, such a gall-stone ileus may occur in a patient from whom one can get no history suggestive of gall-stone trouble, and who at the time of its occurrence presents no tenderness or other evidence of gall-bladder involvement. Such a clinical picture was lately presented in a fat woman in whom the question of gall-stone ileus was considered, and in view of these negative findings deemed unlikely, yet the obstruction proved to be due to the impaction within the colon of a gall-stone which had ulcerated into the duodenum. In patients with a gall stone ileus, a leukocytosis occurs as it does with other forms of obstruction.

Bile peritonitis, a condition in which with seemingly intact gall-bladder and gall ducts peritonitis occurs, and free bile is found within the abdominal cavity, I have never seen, nor have I seen a case of true edema of the gall-bladder.

In examining the excretions of patients with gall tract disease it must be borne in mind—

That glycosuria of as yet unascertained origin sometimes occurs during an attack of gall stone colic.

That when bile is apparently absent from the stools, and yet little or no jaundice be present, we must suspect that the bile is being converted into the chromogen of urobilin by reduction rather than that no bile has been secreted. The corrosive sublimate test cannot be depended upon.

That when a combination of dark colored excreta and jaundice with bile in the urine exists, it must be remembered that a considerable degree of partial stasis of bile can occur without change of color of the evacuations, and it must not be assumed that an excess of bile is being manufactured.

That the occurrence of urobilin icterus is questionable, probably the described cases represent instances of mild bilirubin icterus.

On rare occasions a search of the bowel excreta has shown the presence of a membrane having the appearance of a gall-bladder cast. If such be found

associated with gall-bladder symptoms, membranous cholecystitis is suggested.

Similarly if in patients with gall bladder involvement, parasites or their ova be found a possible causal connection must be considered.

The examination of the gastric contents after an oliveoil test meal is in some cases of distinct value in differential diagnosis, and it may be that an examination of the bowel movements after an olive oil enema will be found to yield serviceable information.

It is only rarely that even technically good radiograms exhibit shadows of gall-stones. Thus an experimental radiogram technically satisfactory made of a patient who was considered to have a single large stone showed no shadow, though the stone as removed at operation was as large as a hen's egg.

In a small percentage of cases distinct shadows are found on the plate. The position they occupy is of no aid in distinguishing them from the shadows due to renal calculi. The gall-stone shadows commonly exhibit a curious ring effect, an annular denser shadow surrounding a lighter area, this effect being due to the deposit of calcium salts upon the surface of the gall-stone.

Indirectly, however, radiography is of much service in gall-bladder diagnostic work provided it be employed with an intelligent purpose in view rather than in a haphazard manner. Let us suppose that we are palpating a tumor mass which we regard as of either colon or gall-bladder origin. If a marker be placed over the mass, and a bismuth enema be given, and then a radiogram made, a separation of the colon shadow from the area of the marker gives valuable diagnostic information. Or let us suppose pericholecystitic adhesions are suspected. A bismuth test meal is administered, and the stomach radiographed in different postures. If the pyloric portion of the shadow be over in the gall-bladder area and remain there with varying content, we have obtained most helpful corroborative evidence.

In suspected gall-stone ileus I would suggest that the stomach be washed out, and a bismuth meal be administered. It is more than likely that the bismuth would enter the gall-bladder through the duodenal gall-bladder opening, and thus again a radiogram might be of considerable diagnostic service.

The same line of reasoning would suggest a similar procedure in those rare instances in which the gall-bladder seems tympanitic on percussion.

It is not in the province of this paper to deal with operative findings, but I desire to touch on some points over which I have had considerable discussion.

1. The normal gall-bladder can, I believe, be completely emptied by comparatively light pressure during an exploratory laparotomy. If it cannot it should be assumed that there is some hindrance to the outflow. If one ligatures the common bile duct in the dog, one can still completely empty the gall-bladder by comparatively light pressure, the bile filling up the hepatic ducts. It seems

not improbable that the same might be possible in the human with an acutely developing common duct block. Whether with a block of some duration this would be likely to occur is another question, but it would seem wise for the surgeon in his gall-bladder work to see the course the bile takes when he squeezes the gall vesicle. I desire to emphasize the words "light pressure," since with a block at Vater's papilla it is possible that bile could be forced into the pancreatic ducts.

2. The outside of an organ is no real clue as to what is within. In the case of gall-bladder infection simulating malignant endocarditis that I have already alluded to, the gall-bladder was not enlarged, its outside seemed healthy to the surgeon, to Dr. Jellinek and myself, yet a drop of bile drawn off through a hypodermic syringe and examined microscopically was seen to teem with organisms, and the drainage of this healthy looking gall-bladder cured the patient.

3. In the angle between the body and neck of the gall-bladder is a lymphatic gland which when indurated feels not unlike a calculus. In cholecystitis the lymph glands up and down the common duct are found to be enlarged. Lymphatic gland enlargement then must not in doubtful cases be interpreted to mean a malignant condition.

SURGICAL TREATMENT OF GALL-BLADDER DISEASE.*

By WALLACE I. TERRY, M. D., San Francisco.

One need not look far back in medical literature to learn that gall-bladder operations were infrequent almost up to the beginning of this century. The foundation work laid by Courvoisier, Kocher, Langenbuch, Bobbs, Sims, Riedel, McBurney and others attracted more or less attention, but the realization of the importance of gall-bladder surgery came from the publication by Kehr of Halberstadt of some four hundred operations on the gall-bladder and bile ducts. Later Mayo Robson and the Mayos reported large numbers of operations and the various manipulative procedures were put on a firm basis.

The points I desire to bring up for discussion in this paper are: First, the advisability or necessity of operations on the gall-bladder; second, some of the technical procedures to be employed.

It was long held by many medical practitioners that operations on the gall-bladder were only justified in the presence of serious complications, such as acute cholecystitis, profound jaundice, perforation or gangrene of the gall-bladder. This opinion was largely based on the fact that the mortality of gall-bladder operations was high, even in the simple cases; and also on postmortem statistics, which showed that in approximately 10 per cent. of the cases gall-stones existed and that symptoms due to them were apparently lacking during life. I use the word "apparently" because I believe that in the vast majority of such cases, symptoms which were either overlooked or ascribed to other condi-

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

tions, did exist during life. Think of the large number of cases of so-called dyspepsia, indigestion, cramps, catarrh of the liver or stomach which have been shown to be dependent upon gall-stone disease. In certain respects the history of gall-bladder disease parallels that of disease of the vermiform appendix—the recognition of the part played by the appendix in the production of symptoms referable to the gastro-intestinal tract was long delayed; so too with the gall-bladder—the operative measures for approaching and dealing with the appendix and gall-bladder have been gradually evolved and often at the cost of lives; and finally the importance of early diagnosis and early operation in these cases has been painfully learned at the operating table or in the postmortem room. Before the pioneer work of Fitz and McBurney on appendicitis was published, it was the rule to wait for an abscess to form before surgical intervention was deemed justifiable—to-day many cases of gall-bladder disease are not treated surgically until serious complications are present. There can be no gainsaying the fact that many individuals go through life with a chronic inflammation of the appendix or some chronic affection of the gall-bladder. The patient with the diseased appendix is, however, usually advised by his physician to have it removed—the patient with the diseased gall-bladder is often counseled by his medical adviser to let it alone. I believe that the day is not far distant when physicians and surgeons will look upon acute and chronic disease of the gall-bladder as they now look upon appendicular disease and in the vast majority of cases urge early surgical treatment. The surgical treatment of gall-bladder diseases in an early stage is not technically difficult and the results are good. Practically speaking, these early cases include only gall-stones in the gall-bladder and cholecystitis, but the late stages and the complications include gangrene, perforation, hydrops, empyema and carcinoma of the gall-bladder, obstruction of the cystic and other bile ducts, pancreatitis and adhesions. The treatment of many of these late conditions is far from satisfactory and the ingenuity and resources of the surgeon are often taxed to the utmost.

It seems reasonable to suppose that disease of the gall-bladder will be less prevalent in the future than in the past, for with the practical stamping out of typhoid fever, the early removal of diseased appendices, the prevention of many postpartum infections by modern obstetric methods and the general improvement in individual sanitation, many of the causes of gall-bladder disease will be eliminated.

The methods of approach to the gall-bladder are limited to a few types of incision which are more or less classical. The object to be attained is the freest exposure of the gall-bladder and surrounding structures, with the least permanent damage to the abdominal wall. In those cases of cholecystitis which only require drainage a short vertical or oblique incision is all that is necessary. A similar incision can also be applied to those cases of gall-stones in the gall-bladder which are discovered in

the course of other abdominal operations and where palpation reveals no complications. The Kocher incision, parallel to the margin of the ribs and through the right rectus muscle, gives a good exposure, but it is often difficult to avoid injury to the lower intercostal nerves which supply the upper part of the rectus muscle. An incision through the outer portion of the right rectus, with extensions if necessary after the manner described by Mayo Robson and Bevan, is my personal choice, as it permits removal of the appendix which is often concomitantly diseased. In individuals with thick, fat abdominal walls, access to the deeper structures is difficult and the incisions are necessarily longer than with thin persons. The elevation of the back, at the level of the liver, by means of a sandbag or suitable table appliance, is often of great value, as it throws the liver upwards and forwards. By downward traction and slight rotation of the liver, part of the right lobe can often be brought out of the wound and the gall-bladder and ducts rendered easily accessible. One should not forget to lower the patient to a level or slightly flexed position before closing the wound.

Adhesions are often present. Whether they should be removed or not should depend upon the individual case—they may serve a useful purpose in limiting infection, as in acute cholecystitis or abscess, or they may be the cause of symptoms. Patient dissection is often necessary—rough handling is to be deplored.

In many acute affections of the gall-bladder with the patient in serious condition, the indication is to merely open it and drain—the desire to remove all the pathological conditions in one operation should not make us lose sight of the patient's recovery. One should not be ashamed to do some of these operations in two or more stages, and the test of the good surgeon is not the brilliant operation he does, but the underlying regard for the welfare of the patient which he has. Where conditions permit, a thorough palpation of the cystic, hepatic and common ducts, the pancreas and the appendix should be made before opening or removing the gall-bladder.

The question of cholecystostomy or cholecystectomy is one that is sure to arise in the mind of the surgeon during many operations on the gall-bladder, but there are a few general principles which should guide one in arriving at a conclusion. If there is obstruction of the common duct and the cystic duct is patent, the gall-bladder should not be removed—it may later be needed for a cholecystenterostomy. In the presence of pancreatitis it is also well to keep the gall-bladder for drainage. One of the most important things to do in gall-bladder work is to institute drainage of the biliary tract, for infection is the etiologic factor in nearly all the diseases of the gall-bladder, and drainage from the gall-bladder is more efficient and safer than drainage from the cystic duct. A non-functioning gall-bladder should if possible be removed, for it is occasionally the seat of a beginning cancer or apt to give rise to a mucous fistula. A thickened gall-bladder or one in which the walls

have been eroded by gall-stones is also better out than in, for similar reasons. It not infrequently happens, however, that a cystic duct which seems entirely closed will open up after drainage of the gall-bladder through the subsidence of inflammatory swelling. When the gall-bladder is of normal thickness and the ducts clear, it is in my judgment better to save it. The risk of cancer developing in such a gall-bladder is certainly small, while the risk of a later obstruction of the common duct from an overlooked or new-formed stone or from cicatricial contraction is probably much greater. Cancer or other tumors of the gall-bladder if found before hopeless involvement of neighboring structures, of course call for radical excision. In the Mayos' statistics of 1800 operations of the gall-bladder or ducts, cancer was present in 4 per cent. and most of them were hopeless cases. Where a cholecystectomy is indicated for benign conditions and the presence of adhesions would render it a difficult or dangerous operation, it is well to remember that excision of the mucous membrane down to the cystic duct, as first advocated by W. J. Mayo, will effect the same result and be found easier of performance. This method also offers a safer means of drainage than a complete cholecystectomy.

Drainage through a stab wound in the loin to one side of the original incision is often advisable and occasionally permits complete closure of the larger wound. In draining the gall-bladder one should endeavor to bring the tube out in such a position that the fundus of the gall-bladder will ultimately be high up, in order to assist natural drainage while the patient is erect.

The mortality of uncomplicated cholecystostomy does not exceed 1 per cent. in skilled hands, while in cholecystectomy it is slightly higher. Undoubtedly with further technical improvements and greater familiarity with the surgery of the gall-bladder, the mortality rate will be lowered.

THE SYMPTOMATOLOGY OF GALL-BLADDER DISEASE.*

By HERBERT C. MOFFITT, M. D., San Francisco.

In 1905 I had the pleasure of reading a paper before this Society upon the clinical features of gall-bladder and gall-duct disease. The mass of publication since that time has brought a few new facts and points of view, but no one feature has been as frequently emphasized through many papers as the importance of a careful history of the patient in establishing an early diagnosis of these affections.

Certain general considerations may properly introduce the subject of to-day. Disease of the gall-bladder is common. In the great majority of cases it is due to infection; stones are nearly always the result of a low-grade infection; many of the clinical

features are dependent upon recurrent infection. Acute cholecystitis may accompany or follow infections like pneumonia, influenza, tonsillitis. A history of *typhoid* should be given due weight in the interpretation of indefinite digestive disturbances or abdominal pain. Gall-bladder symptoms may occur during the typhoid or soon after, though more commonly there is a latent period of some months or years. A man seen two years ago was positive that dyspepsia followed directly typhoid fever 35 years before. For years there were indefinite stomach symptoms before a typical colic called attention to the gall-bladder. When seen he had dilatation of the stomach with hypochlorhydria due to adhesions of the gall-bladder to the duodenum. In a young woman of 20 seen recently attacks of indigestion with marked distress in the upper abdomen had recurred during the past three years. There had been a severe typhoid infection at the age of 15. Operation showed stones in the gall-bladder without adhesions.

Certain associations of cholecystitis should be born in mind.

1. *Appendicitis*.—Ochsner, Moynihan, Dieulafoy, W. H. Mayo, Sherren have emphasized the frequent coincidence of disease of the gall-bladder and appendix. Dieulafoy would have the involvement of the appendix follow primary gall-bladder infection and I have seen two cases which were much like his excellent descriptions of an acute appendicitis following a few days after an acute suppurative cholecystitis. Usually the sequence is the other way and gall-bladder symptoms follow repeated attacks of appendicitis. There can be no longer any doubt that infection of the appendix—even when chronic and of a low grade—is a very frequent cause of other abdominal disease, of colon adhesions, of cholecystitis, and of ulcer of the stomach and duodenum.

It is interesting in the histories of patients to trace the variations of symptoms dependent upon the development of new foci of abdominal infection. In a man of 50 operated upon recently in hospital, attacks of abdominal pain with vomiting recurred throughout boyhood. We know that the recurrent stomachaches of children most often mean appendix disease though they may occur also as associates of acidosis or migraine. After typhoid at 30 more severe attacks of abdominal pain recurred once or twice a year and were accompanied by chills and fever for several days. Gradually during recent years there developed symptoms of stomach dilatation and retention and the usual signs of this condition were found on examination—operation showed a large gall-bladder enclosing stones and adherent to the liver and duodenum and so kinking and narrowing the duodenum as to cause great dilatation of the stomach. A man 55 seen

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two weeks since had till the age of 30 recurrent severe abdominal pain with chief localization in the lower right quadrant. At 30 a particularly severe attack was followed by fever for two or three weeks and a desperate illness. Since then there have been no such seizures but soon after stomach symptoms began and in the last years there have been several typical gall-bladder colics. There is tenderness under the right rib-border and an X-ray bismuth plate shows the high position of the stomach and the high pylorus far over to the right so often indicative of gall-bladder and pyloric adhesions. It is interesting to note how frequently acute symptoms of gall-bladder disease develop after appendix operations. A nurse seen three years ago had her appendix removed six years before on account of chronic indigestion and abdominal pain localized chiefly about the cecum. She was considerably relieved by operation, but within six months began to have distinct upper abdominal symptoms followed in a year by typical colic. Operation showed a contracted and adherent gall-bladder full of stones. A patient now under observation was operated upon two years ago to relieve severe attacks of abdominal pain which were referred by the surgeon to a diseased appendix. This was removed but the attacks have persisted, unmodified. There was a history of a long typhoid in childhood, of migraine and there is tenderness in the gall-bladder region with a suggestive X-ray plate. The necessity of a thorough exploration of the abdomen at operations aiming to relieve chronic symptoms when history and examination suggest several localizations of disease—the investigation of gall-bladder, appendix, Mickel's diverticulum, colon, kidneys and the pelvic organs in women—should need no special emphasis in light of the surgical views of the day.

2. *Chronic Pelvic Disease and Enteroptosis* in women. Kinking of the gall-bladder, infection favored by stasis, gall-stones, are not infrequent complications of enteroptosis. I have notes of a number of cases similar to those of Kehr in which unequivocal symptoms of gall-bladder disease followed shortly after an operation for fibroids or disease of the ovaries or tubes. In many instances, as shown by a proper history, the gall-bladder was affected before the operation, the latter merely serving as a provocation. In a few instances, however, the operation has seemed a more direct cause of the gall-bladder infection—a hint worth remembering in light of recent publications concerning the occurrence of ulcer of the stomach and duodenum after operations, abdominal or of the neck and extremities. (Rössle *Das runde Geschwür des Magens und des Zwölffingerdarmes als "zweite Krankheit"* Mittheilungen aus den Grenzgebieten der Medizin und Chirurgie Bd. 25 s. 766.)

3. *Migraine, Pregnancy, Obesity.*—The recent work of Aschoff and his pupils concerning the etiology of cholelithiasis may be mentioned in this connection. Aschoff holds that stones may result from stasis alone as well as from stasis plus infection. The radicular crystalline cholesterin stones occur without the presence of micro-organisms. They may result from the impoverishment of the

bile in neutral fats which have been absorbed by epithelial cells and lymphocytes and the consequent precipitation of cholesterin. Cholesterin is therefore not necessarily a product of the epithelial cells of the gall-bladder. Kehr, in a recent article (*Welche Indikationen für die interne und chirurgische Therapie des Gallensteinleidens müssen wir auf Grund der Untersuchungen des Pathologen Aschoff aufstellen?* Berliner klinische Wochenschrift No. 24, 1912), lays much stress upon the work of Aschoff in its clinical applications. There may be such a thing as a cholestrin diathesis and the bile content in cholesterin may not, as Naunyn holds, be independent of metabolic processes. It may be increased in physiological processes, in obesity, in pregnancy. "Die von Aschoff angenommene Cholesterindiathese wurde dann die immer wieder beobachtete Erblichkeit des Leidens zwanglos erklären." The greater frequency of gall-bladder disease in women, the influence of pregnancy (90% of married women with stones have had children. W. H. Mayo), the influence of menstruation in precipitating attacks are important facts to remember which would substantiate the theory of Schell that there may be changes in metabolism connected with the sexual function that favor stone formation. W. H. Mayo writes in relation to the frequency of gall-bladder disease in women, "that there is some cause for the phenomenon which relates to sex and which cannot be explained by habits, diet, mode of living, etc., seems assured."

The relations of migraine and cholelithiasis have interested me for many years. Gall-stones are common in migraine families and Kehr notes the frequency of migraine with cholelithiasis and says he has repeatedly known the attacks to cease after operation. The same nervous or dietary influences may precipitate an attack of migraine or hepatic colic; in women attacks of either affection frequently accompany menstruation. In my experience both classes of patients often cannot take sugar, milk or eggs with impunity and both classes often feel unusually well and unusually hungry just before attacks.

The symptomatology of gall-bladder disease will vary with the acuity or chronicity of the process; it will depend, in the presence of stones, upon the location of these in the gall-bladder or cystic or common ducts; it will depend also upon complicating peritonitis, upon adhesions to the different abdominal organs. It is in the interpretation of the different kinds of cholecystitis and of the widely differing symptoms brought about by the complicating stones and adhesions that a good history is so indispensable. A good clinical history is a very difficult thing to get. In the first place students are not thoroughly enough drilled in taking it and physicians do not attach sufficient importance to it. Patients forget with exasperating frequency the most important facts and elaborate without end trifling details. Patience and repetition are absolutely necessary and a complete story can only be obtained after several interviews. If the family physician would only keep full records even of trifling ailments, if parents could be taught

to put down clinical phenomena in children other than the first tooth and the first word tremendous forward steps could be taken in semeiology of disease. The importance of early or inaugural symptoms has been insisted upon by Moynihan, W. H. Mayo, Deaver, Sherren, Mayo Robson, Kehr, Cotte, Verbrycke, Kelly, Coleman and many others. We realize to-day that "latent" cholecystitis, especially when combined with cholelithiasis, rarely exists and we recognize the affection at a much earlier age than formerly and before late complications like colic and jaundice occur. The patient with gall-bladder disease complains most often of vague upper abdominal sensations and gastric disturbances. Flatulence is extremely common and a persistent complaint of gas in a stout woman who has had children should rouse the suspicion of gall-bladder disease. There is frequent sudden distension after eating, often painful and requiring loosening of corset or clothing. This weight and pressure are relieved by belching. If persistent they may amount to actual pain. A sense of constriction and interference with deep breathing may be noted. A sudden "catch" may be felt on the right side when a deep breath is attempted. There may be a sensation of heaviness or dragging in the right hypochondrium, at times a feeling as if gas or stomach content were forced against an obstruction at this site, a sense of relief and relaxation when gas is felt to pass through this obstructed place or "lump." These symptoms usually come suddenly. They may be brought about by errors in diet or alcohol, may be caused by over-tiring, by mild infections, may be precipitated by menstruation, by anger, excitement or worry. Frequently, however, they cannot be referred to indiscretions of diet, nor do they have any relation to the time of taking food. They appear without rhyme or reason; they often occur at night. Mild general symptoms may accompany this recurrent "dyspepsia." There may be dullness, drowsiness, lassitude, aching in the back and extremities, occasional chilliness or even a brief chill. Labial herpes is frequent. There may be an ephemeral rise of a degree or two in temperature, rarely there is a slight persistent afternoon temperature extending over weeks or months. Hyperacidity often marks this gall-bladder dyspepsia. Many patients complain of burning in the upper abdomen, of distress and pain from pylorospasm. Constipation is common as is also a sudden distension of the abdomen from intestinal relaxation. Mucous colitis is not usual unless there be adhesions of gall-bladder and colon.

Certain symptoms such as actual pain and tenderness in the upper abdomen, though later in developing, must be considered in detail as they call attention more directly to the gall-bladder disease.

1. *Pain.*—This may be of many kinds and from many causes. It may depend upon spasm of the pylorus, cardia or entire stomach, may be a result of gall-bladder distension, of distension and contraction of the cystic or common ducts, may be caused by involvement of the peritoneum acutely or from dragging or kinking of adhesions; may

be reflected from spinal segments long irritated by the chronic peritoneal or visceral disease. In early stages there may be sharp evanescent pain in the epigastrium or stabbing needle-like pains about the gall-bladder. Later there is complaint of dragging deep pain under the right ribs and the patient begins to have decidedly acute pain in epigastrium, hypochondrium or back after one of the above described "dyspeptic" attacks or after exertion, alcohol or excitement. At this stage also various radiations of pain become apparent. Discomfort and pain are felt up along the sternum, around the lower ribs on the right to the back. There may be decided subscapular pain, usually worse on the right. An aching, dragging sensation extends downward toward the appendix, inward toward the umbilicus. There may be queer distant pains—upward into the right side of the neck from phrenic irritation, in the wrists, in the lower extremities. In several women I have seen the pain along the outer side of the right upper arm upon which Mackenzie dwells.

Severe attacks of colicky pain are as a rule among the later symptoms of gall-bladder disease. Hepatic colic, as is well known, may occur in perfectly typical way in the absence of stones. The weight of opinion still refers biliary colic to increased tension in the gall-bladder or ducts due to inflammation and not to cramp of the ducts due to irritation of a stone or other foreign body within. Severe recurrent pain in the upper abdomen nearly always means gall-bladder disease. If proper attention is given to the history and the patient is carefully examined biliary colic can hardly be confounded with the pain of acute pericarditis, diaphragmatic pleurisy, pneumonia, tabetic crises or angina. Biliary colic rarely radiates into the lower abdomen. It may radiate across the upper abdomen in the left hypochondrium or may extend backward under the left scapula. Usually the radiation is around the right lower ribs into the back and under the right shoulder blade. The pain of appendicitis is nearly always at a lower abdominal level, except in the initial epigastric pain that ushers in many attacks and the pain of pylorospasm in chronic cases. Stomach or duodenal ulcer is in my experience not often marked by severe gastralgia unless there are adhesions to the liver, pancreas or omentum. The pain of nephrolithiasis may occasionally be referred wholly to the epigastrium or hypochondrium. In a case of right-sided perinephritic abscess seen last year there was a history of jaundice a year before and slight jaundice was noted during the early days of the last illness. There was tenderness in the right hypochondrium and over the Boas area in the back. Pain was referred to the right lumbar and subscapular regions. There were no signs in the urine and yet the characteristic psoas spasm was sufficient to divert attention from the gall-bladder. The nerve-root pains of spinal syphilis, of tubercular spondylitis, of osteoarthritis of the spine, may be felt in the gall-bladder radiations but both history and examination will readily differentiate.

2. *Tenderness and Zones of Hyperesthesia.*—

When cholecystitis is well established tenderness can usually be elicited by deep pressure in the gall-bladder region. If the fingers are hooked over the right rib-margin with the patient standing or sitting and he be asked to take a deep breath, if there be irritation about the gall-bladder the right half of the diaphragm suddenly stops descending as the liver is forced against the hand, and there is complaint of pain and tenderness. This is the well-known Murphy's sign. Boas has drawn particular attention to the value of tender points in the back in the diagnosis of stomach and gall-bladder disease. In gastric ulcer the tender point is most frequently found just to the left of the eleventh dorsal spine. In gall-bladder affections the tenderness is over the posterior surface of the liver from the tenth dorsal to the first lumbar vertebrae, and from the posterior axillary line to within 2 c.m. of the spinal column. Usually in many cases the maximum tenderness has been about 4 c.m. to the right of the eleventh dorsal vertebra. It is a valuable sign when present. I am less enthusiastic now than formerly about the value of the hyperesthetic zones of Head in the diagnosis of abdominal disease. Head thinks that the eighth dorsal segment has closest relation to the gall-bladder.

3. *Jaundice*.—We are much indebted to the surgical teaching of the last ten years, that jaundice is a comparatively rare symptom in gall-bladder disease. Kehr writes that in 80% of all cases of cholelithiasis jaundice is absent. If we remember that in the big majority of gall-bladder affections pain is due not to the passage of a stone down the ducts but to distention and inflammation of the gall-bladder, the absence of icterus is readily explained. A certain degree of inflammation of the ducts may occur with cholecystitis, and jaundice may result. Even if jaundice occur, therefore, after biliary colic it is no sign that stones are present or, if present, that a stone has passed. Even with a stone or stones in the choledochus there is frequently no jaundice. It is a most important fact to remember that ball-valve calculi in the common duct may for months or years give rise to intermittent fever and yet not cause jaundice. When it occurs jaundice may help greatly in the diagnosis of gall-bladder disease and its complications, but it may also at times render this diagnosis decidedly more difficult. It must be remembered that a stone may lodge in the choledochus without previous definite warning. The jaundice of cholelithiasis and cholangitis is frequently variable in intensity and bile may appear intermittently in the stools and urobilin in the urine. The jaundice of cholangitis grows more intense frequently after a paroxysm of fever. The jaundice of malignant disease is as a rule persistent. Attention to the law of Courvoisier, to the history, to a palpable Virchow gland will in many cases help in the diagnosis when jaundice is present. Itching of the skin may be marked without jaundice in some cases of cholecystitis and cholangitis. In many cases after an attack of flatulence, dragging pain in epigastrium, hypochondrium or under the right scapula, slight chilliness and possibly

fever there will be an increased sallowness or mud-diness of the skin and a yellowish hue to the conjunctivae. Occasionally here blood serum tests will show the presence of bile pigment when urine tests are negative. In an interesting case with great prostration and irregular temperature lasting for months a number of nevi and spider angiomas appeared in various parts of the body. Operation showed gall-stones in gall-bladder and choledochus.

4. *General Symptoms, Prostration, Collapse, Fever and Chills*.—In acute phlegmonous cholecystitis profound prostration and the severe nervous symptoms of a general infection may overshadow local manifestations. There may be general abdominal distention, vomiting, symptoms of ileus. Fever may be high and continuous or intermittent or may be wholly wanting. In less fulminating cholecystitis general symptoms may be little marked. In empyema of the gall-bladder due to the small number of lymphatics and lymph-glands draining the territory there may be very little fever and slight general reaction. If there be intermittent discharge of purulent material through the cystic duct there may be intermittent high temperature and chills. The remarkable intermittent hepatic fever of Charcot has often been described; it is most often associated with ball-valve calculi in the choledochus and steep curves may be seen on the chart for weeks or months without meaning pus. With the frequent mild attacks of cholecystitis in the course of cholelithiasis there may be moderate fever for a few days and occasionally with chronic cholecystitis there may be a slight afternoon rise of temperature, 99.5° to 100.5° for months at a time. A woman operated upon four years before for fibroid tumors of the uterus was ill for four months with temperature ranging from 100° to 102°. There was great prostration and marked cardiac weakness with a peculiar "gone" faint feeling in the epigastrium. There was very slight tenderness in the gall-bladder region, and complete recovery took place after removing a number of gall-stones and foul fluid from the gall-bladder. Another woman who had a history of previous acute upper abdominal pain was ill for over a year with fever from 99° to 100.5°. She lost a great deal in weight, was tired, languid, had no appetite and occasionally had attacks of dull pain under the right ribs and over the liver in the back. At operation the gall-bladder was small, thickened and contained pus and stones.

When complications occur, either from pericholecystitis and adhesions or from the passage of stones into the ducts or from extension of suppuration into the liver or the neighborhood, the symptomatology of gall-bladder disease may be much modified and obscured. Stomach symptoms may be more persistent and severe. The dyspepsia and transient pylorospasm of the early stages are replaced by vomiting during painful seizures, at times by persistent vomiting. Bile is more often vomited in the painful attacks of gall-bladder origin than in the vomiting from stomach ulcer or appendicitis. The vomiting of ulcer is more definitely dependent upon the taking of food. Persistent hyperchlorhydria may be due to gall-bladder disease and re-

markedly persistent pylorospasm may be noted in some cases. At times cardiospasm may be a feature or the entire stomach may contract abnormally and give peculiar outlines on the X-Ray screen or plate (literature given by Buttner, *Intermittirender Spasmus der beiden Magenporten als Reflexneurose bei Cholelithiasis* Arch. für Verdauungs krankheiten XVI Heft. 2. Emmo Schlesinger, *Totaler Gastrosasmus, rontgenologisch nachgewiesen bei Cholecystitis und cholelithiasis* Berliner klin. Woch. 1912 No. 26). There may be gastric atony instead of spasm and hypochlorhydria instead of hyperacidity. Dilatation may follow stenosis of the pylorus or duodenum due to adhesions between gall-bladder and stomach or intestine. Vomiting and retention characteristic of such stenosis and disturbed motility will now direct attention from the original disease unless a good history traces the order of successive symptoms. Free hydrochloric acid is frequently absent in such cases and I have notes of five patients in whom the stomach-content gave the tests usually present in carcinoma, absent free HCl, absent ferments, lactic acid and Boas Oppler bacilli present. In three cases there was a Gram positive intestinal flora. In one of these patients, a man, hematemesis occurred on two occasions, and yet the history, a good appetite and a clean tongue spoke strongly against stomach carcinoma. The operation showed a gall bladder filled with stones adherent to the duodenum. In a stout woman seen recently in the course of a very severe biliary colic of two days' duration—so severe as to suggest a pancreatic complication—the attack was attended with the passage of a considerable amount of dark blood from the bowel. A nurse, aged 35, who had had typhoid at 25 had symptoms of gall-bladder disease for eight years. At first there was dyspepsia with occasional epigastric pain, later pain in the right hypochondrium with the appearance of a distinct tumor during severe attacks. During the last two years of illness there had been continued stomach distress with frequent vomiting and evidence of retention. Attacks of tetany had occurred in the last year. Operation disclosed a large gall-bladder with stones and adhesions to the duodenum and stomach dilatation.

Involvement of the pancreas is much more common in connection with bile-duct than with gall-bladder disease. Glycosuria is occasionally seen in gall-bladder affections without pancreatic complications. Extreme pain, collapse, cyanosis, symptoms of ileus are more common when acute pancreatitis complicates gall-bladder or gall-duct disease. Chronic pancreatitis may lead to emaciation, persistent jaundice and a palpable abdominal tumor.

In a few patients cardiac insufficiency seems directly referable to chronic gall-bladder infection; Babcock of Chicago has written of the frequent connection. Riesman has noted the frequency of mitral systolic murmurs in biliary colic and has suggested that the sign may help in the differentiation from renal colic or appendix pain.

CHOLELITHIASIS WITH A SHORT REVIEW OF ONE HUNDRED NECROPSIES.*

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Cholelithiasis is a very common disease. Our one hundred cases occurred among 1648 necropsies or expressed in percentage in 6% of all necropsies including infants, children, men and women. Higher percentages up to 15% have been reported from other places.

Our material also shows a relative preponderance of the disease in women, although the actual number of cases observed among men is larger, but this is due to the fact that many more males were examined than females.

We did not find one instance of cholelithiasis in a person below 30 years of age and the largest number of cases occurred between 40 and 60 years of age, which corresponds well with statistics published elsewhere. It is a well known fact that gall stones are very rare in children, although a few cases have been reported in childhood and even in early infancy. Still,¹ for instance, found eleven bilirubin stones in an infant of nine months and three calculi in another infant eight months of age. On account of the frequently long period of latency of the disease and on account of the large preponderance of old people who come to autopsy it would seem probable that as a rule gall stones develop rather earlier in life than would appear from such statistics.

It is impossible to enter into a minute description of the various forms of gall stones. Their appearance is familiar to all of you. They vary from just visible to stones of the size of a hen's egg and larger, and in consistence they may be all the way from soft, either pasty or grumous, to hard calcareous masses, which are difficult to cut with the knife.

It is more important to distinguish different varieties of gall stones, although it must be confessed that the classification of them is by no means easy and obvious in all cases. Roughly we can distinguish between cholestearin stones on the one hand and bilirubin stones on the other, although cholestearin stones usually contain some bilirubin, and vice versa.

The bilirubin is never precipitated as such but always with a certain amount of calcareous material, the amount of which, however, varies considerably, causing the precipitations to be either soft and pasty or of stony hardness. On this account such concretions are also frequently spoken of as pigment lime stones. They are usually small stones of about the size of a birdseed which, according to Boysen,² show a very peculiar and characteristic structure in sections produced by grinding, from which the coloring matter has

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¹ Still, Gall stones in children. Pathol. Society of London, 1899.

² Boysen. Über die Struktur und die Pathogenese der Gallensteine. Berlin, S. Karger, 1909. The Danish original appeared in 1900.

been removed with acids and chlorine. They then exhibit a hyaline clear peripheral layer and an irregular cavity in the center. Larger stones of this variety are formed by fusion of these small units and therefore look somewhat like "mulberries." It is commonly assumed that the smaller stones of this kind often form in the intrahepatic bile ducts and may then be transported into the gall bladder, where they grow into larger stones by accretion or by becoming the nucleus for the formation of ordinary cholestearin stones. Boysen is particularly insistent on this latter point and claims to have found frequently still recognizable remnants of small bilirubin stones in the centers of large cholestearin stones, and he also believes that the more irregular masses of pigment lime which almost invariably form the nucleus of the ordinary cholestearin stones are disintegrated remnants of such bilirubin stones. The importance of these assertions lies in the fact, that it would place the origin of the gall stones in the bile ducts and not in the gall bladder where they are most commonly found, and that the problem of the etiology of gall stones would then be intimately connected with the origin of these bilirubin stones.

The cholestearin stones are much more common and better known. They practically always occur primarily in the gall bladder. They are usually quite numerous and sometimes extremely so, over a thousand having been found in one gall bladder. When present in large numbers they are more or less faceted. When there are only a few of them, they are rounded and the large solitary stones of this kind often are pear-shaped like the gall bladder which contains them. We are all familiar with their main characteristics, their light specific gravity, their peculiar consistence, like a dry somewhat brittle paste, and their pretty crystalline cut surface, which usually shows as well radial as concentric markings. The latter evidently result from the fact that they usually form in consecutive layers. The radial markings are due to the arrangement of the cholestearin.

Our modern conception of the etiology of gall stones appears in many ways well founded and extremely satisfactory. It commenced with the careful researches of Meckel von Hemsbach³ in the middle of the last century who, from his study of gall stones, came to the conclusion that the formation of a soft organic matrix which he believed he could identify as mucus, was the important factor in their formation and the deposition in it of the solids, like pigment lime or cholestearin, only of secondary importance. This "mucus" which later investigation found to be a proteid material not related to mucus, was furnished by the "*lithogenous catarrh*" of the walls of the biliary tract. The question then naturally arose, whence comes this lithogenous catarrh? The answer was furnished by the work of Gilhert⁴ and his pupils in France and by Naunyn⁵

in Germany. They asserted that the catarrhal inflammation results from bacterial infection. Gilhert and Fournier showed that in a considerable proportion of cases living bacteria or dead remnants of such could be found not only in the bile in cases of cholelithiasis, but in the very centers of gall stones; the ones most frequently encountered being the bacillus coli communis and the bacillus typhosus. These findings have been confirmed later quite extensively, more especially in our own country. Gilbert crowned his work by succeeding, after many unsuccessful efforts, in producing gall stones experimentally by infecting the gall bladder of animals with certain cultures of colon bacilli or those of the bacillus typhosus. Almost simultaneously Mignot⁶ published a very extensive and thorough piece of research in this direction also with many positive results. According to Mignot the success of the experiment does not depend on the species of the infectious agent but on the degree of its virulence, a large number of organisms of a certain low degree of virulence provoking the mild inflammatory reaction of the mucous membrane which leads to formation of gall stones. These views of Mignot's were later confirmed by other investigators, among them by Dr. Lartigau⁷ of San Francisco.

Stagnation of bile and subsequent infection of it with colon bacilli or typhoid bacilli or other bacteria of a certain degree of virulence are therefore generally looked upon as the essential cause of cholelithiasis.

The great frequency of the disease in women is usually referred to interference with the flow of bile by tight lacing or by pregnancies, still one may reasonably doubt whether these or similar mechanical conditions are the real reasons.

Those who believe with Boysen that the majority of gall stones commence as small concretions of pigment lime in the bile ducts are not so well satisfied with the infectious theory. They also insist that there must be a catarrhal condition to furnish the organic matrix, but they doubt whether it is necessarily of bacterial origin in all cases.

Aschoff and Bacmeister⁸ have recently published a very interesting monograph on cholelithiasis in which they assert that single pure cholestearin calculi may be formed without any inflammation of the bile passages, in fact Aschoff believes that frequently, if not always, the first stone in the gall bladder develops in this way and that only after this stone has caused a certain amount of obstruction and stagnation, bacterial action comes into play and then leads to the formation of the ordinary faceted mixed stones.

The modern conception as initiated by Meckel and more especially as elaborated by Gilhert and Naunyn stamps the disease as a purely local disorder, in strong opposition of the formerly more current view that disturbances in metabolism leading to the oversaturation of the secretions with certain hodies might play some role in the produc-

³ Meckel von Hemsbach. Mikrogeologie. Berlin, 1856.

⁴ Gilbert & Dominici. La lithiase biliaire est-elle de nature microbienne? Compt. rend de la Soc. de Biol. 1894, 10 s. I, 485 and several preceding and later publications.

⁵ Naunyn. Klinik der Cholelithiasis. F. C. W. Vogel, Leipzig, 1892.

⁶ Mignot. L'origine microbienne des calculs biliaires. Arch. gen. de med., 1898, II, 129, 263.

⁷ Lartigau. Relation of bacteria to the development of gall stones. Cal. State Journal of Medicine, 1906, IV, 17.

⁸ Aschoff and Bacmeister. Die Cholelithiasis. 1909.

tion of calculi, wherever they may be found. What has puzzled me in regard to gall stones is the fact that they undoubtedly occur more commonly in stout persons. Of our one hundred cases one-third were definitely described as either unusually well nourished or as definitely stout, which is a very high average, when we consider, how extremely emaciated many of the patients get to be in the course of the disease; in fact, the loose skin of many of the latter still bore witness to the former affluence of their adipose tissue.

I am therefore of the opinion that certain problems connected with the etiology of cholelithiasis are still awaiting their final solution.

One of the most striking facts about cholelithiasis, corroborated by our series, is the frequency with which gall stones are found at autopsy unassociated with any evidence of consecutive disturbance. Among our one hundred cases there are forty-seven in which gall-bladder, ducts, liver and pancreas were free from all lesions which might be referred to the presence of gall stones. Liver and pancreas were examined microscopically in all cases.

The most common lesion found otherwise is a chronic either diffuse or more localized cholecystitis which may lead to shrinkage and adhesions. The mucous membrane is either intact or often shows a peculiar proliferation of its crypts with deep penetration of the muscular coat, which is well known to pathologists. In other cases the inner surface is ulcerated. In our series there were superficial ulcers in two cases, deep ulcers with perforation in eleven cases. These perforations had led to the formation of abscesses in the adjoining part of the liver or in adhesions around the gall bladder in three cases. I remember especially well one case of cholelithiasis with streptococcus infection with a large abscess of the size of a fist in the liver which freely communicated with the much distended and extensively ulcerated gall bladder. Both abscess and gall bladder appeared to be filled with large blood clots which, on microscopic examination however, proved to be a coagulated hemorrhagic exudate.

These perforations often lead to the formation of false diverticula tightly enclosed in which the gall stones are then found, long after the attack has subsided. We have seen altogether five cases of this character.

If the infection extends into the space between diaphragm and liver, large subphrenic abscesses may develop as in one of our cases.

The discharge of gall stones from the gall bladder either on the body surface or into adjoining hollow viscera by means of such perforations is of course well known. In one of our cases there was such a perforation into the transverse colon, in another into the duodenum, representing the more common occurrences.

The development of hydrops of the gall bladder after occlusion of the cystic duct by gall stones without virulent infection, also seems to be quite frequent. We saw five such cases.

It may not be out of place to remind you at this point, that at operation or autopsy it may be very difficult to decide whether one is dealing with chronic cholecystitis with excessive formation of cicatricial tissue, or with diffuse carcinoma of the gall-bladder. I have seen several such cases which were extremely puzzling in this regard and could not be properly classified until after microscopic examination.

It is somewhat surprising to notice in our series of one hundred cases, that there were only about one dozen in which the stones had arrived in the bile ducts with the usual result of causing obstruction at the papilla, dilatation of the ducts and almost invariably a severe degree of suppurative cholangitis which was associated with multiple abscesses in the liver in three instances. In other cases the long continued infection of the small ducts produced a well marked biliary cirrhosis of the liver, which was observed by us four times.

I am sorry that I cannot enter at length into the very interesting development of our knowledge in regard to the relation of cholelithiasis to pancreatic disease.

A coincidence of the two conditions had been frequently noted ever since pancreatic disease was studied more carefully and the fact that the main duct of the pancreas, the duct of Wirsung, usually opens conjointly with the common duct into the diverticulum of Vater had given further food for reflection, still the interrelation of cholelithiasis on the one hand with such diseases as acute hemorrhagic necrosis of the pancreas and chronic pancreatitis remained quite obscure, until the brilliant researches of Opie⁹ threw a flood of light upon the subject. He observed the mechanism through which material in the bile ducts may regurgitate into the pancreatic duct, when the papilla is closed by a small stone, not large enough to fill the diverticulum of Vater and block the pancreatic duct also. In this way a continuous passage is established between the common duct and the duct of Wirsung, if the latter opens in the usual place. He also showed, that injections of a fairly large amount of even normal bile into the pancreatic duct of dogs sufficed to produce acute hemorrhagic necrosis of the pancreas, often associated with disseminated fat necrosis. From later experiments of Flexner¹⁰ it would appear, that the bile salts are the active principle in the production of these pancreatic lesions. It was also determined, that smaller doses of bile are apt to produce more chronic lesions in the pancreas.

Among our cases there were found evidences of chronic pancreatitis in seven instances, in four of which the lesions were quite severe. There were three cases of acute inflammation with recent fat necrosis which in two cases were more circumscribed and in one showed the characteristic appearance of an acute diffuse hemorrhagic necrosis of the pancreas.

⁹ Opie. Cholelithiasis and disease of the pancreas. Amer. Jour. of Med. Sciences, 1901, CXXI, 1.

¹⁰ Opie. Etiology of acute haemorrhagic pancreatitis. Johns Hopkins Hosp. Bull., 1901, XII, 182.

¹⁰ Flexner. Constituent of the bile causing pancreatitis. Jour. Exp. Med., 1906, VIII, 167.

There were in addition two very interesting cases of old, more or less walled-off fat necrosis. In one of these the cicatricial contraction around a large fat necrosis in the retroperitoneal tissue had led to the obstruction of the superior mesenteric vein with hemorrhagic infiltration and necrosis of a large piece of the small bowel.

In conclusion I may state that entrance of bile in cholelithiasis into the pancreatic duct is not the only cause for such lesions in the pancreas. According to the suggestion of Eppinger¹¹ and of Polya¹² serious pathological conditions arise in the pancreas whenever there is forced into the pancreatic duct any fluid capable of activating the pancreatic ferments which normally are present in the gland in an inactive state as proferments. The enterokinase of the duodenum would naturally be assumed to play an important role in this direction when its regurgitation into the pancreatic duct which is ordinarily impossible is facilitated by pathological conditions. Opie¹³ has made the

¹³ Opie. *Disease of the pancreas*. 2d edition, 1910. ingenious suggestion that such may be the case more easily when the pancreatic duct does not open through the duct of Wirsung at the papilla as ordinarily but through the usually atrophic *ductus Santorini* separately from the bile duct with less perfect protection from regurgitation of intestinal contents into it.

SYMPOSIUM ON GALL-BLADDER.

Discussion.

Dr. Emmet Rixford, San Francisco: There are two or three little points I noted in passing which perhaps might be mentioned. Dr. Moffitt stated that the pain in cholecystitis is due to distension of the gall-bladder; this may be true, but it does not necessarily mean that the gall-bladder under such circumstances is distended, i. e., the gall-bladder may not yield to the distending forces, for it is a common observation of surgeons that the pain is perhaps even greater in those cases of markedly contracted gall-bladder, in which the gall-bladder is little more than a cicatricial sac squeezing down upon the mass of gall-stones.

Dr. Eloesser remarked that the duct of Santorini drained certain portions of the pancreas into the pancreatic duct and that as a safety valve, or means of conducting the pancreatic secretion into the bowel in event of stoppage of the duct of Wirsung, was of little value. However, there is no doubt that it may act as such a safety valve, as shown by the case of a young woman of thirty with carcinoma of the biliary papilla, completely obstructing the ducts (at least it was evident that it produced complete obstruction of the common duct). We removed the carcinoma (November, 1899), implanted the choledochus into the duodenum and ligated the pancreatic duct. The duct of Santorini was exposed in the operation and was preserved. The patient lived for two years without symptoms or evidence of pancreatic indigestion. There were no fatty stools.

Concerning the danger of ascending infection following cholecystenterostomy, I would say that this patient returned one year after the operation with recurrence and in deep jaundice which was relieved by cholecystenterostomy. The operation was done with the Murphy button and no trouble of ascending infection followed, nor did the open-

ing close. In another case of carcinoma of the choledochus in which we performed cholecystenterostomy also with a Murphy button, there was no evidence of ascending infection through many months of observation. We know that the opening did not close by the non-recurrence of the jaundice and by the fact that the Murphy button remained in situ (one objection to the Murphy button).

Dr. Terry spoke of the use of a bolster behind the lumbar region as assisting in exposing the ducts. It does another thing, it makes more tense the anterior abdominal wall. If one flexes the pelvis, doubling the patient up, he will find he can get an excellent exposure and with less difficulty in holding the intestines back and with consequently less trauma.

I am particularly interested in this symposium on gall-stone disease because I think it marks a little change in the Society's attitude toward the subject from that exhibited at Riverside in 1905. At that meeting I read a paper entitled "Early Operation in Gall-stone Disease," and reported 15 cases in my own practice in which there was a history of symptoms which might have been interpreted as indicating the presence of gall-stones. Nearly all these cases had sooner or later serious complications which interfered enormously with attack by operation and which in certain cases made operation futile, e. g., one such patient being opposed to operation had received medical treatment in San Francisco and was finally sent to Carlsbad. The cholecystitis was improved and after a while the patient returned home. On his arrival he had another attack and immediately packed his duds and went again to Carlsbad, with similar improvement. Possibly, had that man spent the remainder of his days in Carlsbad he would have been comfortable for a considerable length of time, but he returned home and shortly thereafter suddenly developed peritonitis. We opened the abdomen and found fat necrosis of the omentum, mesentery and retroperitoneal tissues generally. The digestion by the pancreatic ferments had destroyed the tissues about the mesenteric vein and cicatricial contraction had all but closed the vein. Thrombosis occurred and the man died of necrosis of the entire small intestine and ascending colon.

There were several other cases of chronic pancreatitis with fat necrosis, several of carcinoma in which it is pretty generally agreed that gall-stones are of etiological significance, two cases of perforation of the gall-bladder, several in which adhesions made operation hazardous, one or two cases of phlegmon of the gall-bladder.

I may say that I am very glad to have heard Dr. Terry's paper because I agree with everything he says. His comparison of the attitude of medical men towards early removal of the appendix is precisely the statement I made at Riverside in 1905, and which was earlier made by the late Dr. Richardson of Boston. My paper called forth the remark from a medical gentleman in discussion that 75 per cent. or so of people with gall-stones carry them with little or no discomfort and from a surgeon that "the only reason or justification he could see for advocating early operation in gall-stone disease was the hunger of the surgeon." I am glad to see that the Society is taking a different view of the matter at this time.

I do not, however, wish to put myself on record as advocating indiscriminate operation whenever gall-stones are known or are suspected to be present, and I of course acknowledge the value of medical measures in relieving the symptoms in gall-stone troubles. My position I think was clearly stated in the paper referred to and I have seen no occasion since to modify the opinions there expressed unless to strengthen them, viz., that gall-stones which have caused symptoms warranting the diagnosis to be removed surgically unless there is some complication making operation more

¹¹ Eppinger. *Zur Pathogenese der Pankreasfettne* krose. *Zeitschr. f. Exp. Path. & Ther.*, 1905, II, 216.

¹² Polya. *Zur Pathogenese der akuten Pankreasblutung und Pankreasnekrose*. *Berl. Klin. Woch.*, 1906, XLIII, 1562.

hazardous than repeated attacks of cholecystitis; that early operation is vastly less hazardous than late; that the gall-bladder should be palpated for stones as a routine procedure in the course of abdominal operations for other lesions excepting in septic cases and in the presence of too great shock, for the information thereby gained may be of inestimable value to the patient; that gall-stones thus found had best be removed if such removal does not unduly prolong the operation or materially increase its risks and one has the permission of the patient to perform such removal quite as is done in the case of the appendix.

Dr. W. F. Cheney, San Francisco: So much has already been said in the course of the day in regard to the various phases of this subject that about all one can do is to call attention to the particular points that have been raised. I think one of the most important lessons that have been set forth here to-day is the increased knowledge of the frequency of gall-bladder disease. The man who is interested particularly in digestive work and has cases coming to him because of gastric disturbance, is learning more and more to discover how often the real seat of disease is in the gall-bladder. As Mayo says in one of his articles, to treat the stomach in one of these cases of gall-bladder disease is "like pouring water on the fire alarm box to put out the fire." The large proportion of disturbances that we used to call gastric neuroses are due to diseases of the appendix or gall-bladder. Unfortunately there is no type of gastric disturbance that we can say always is due to gall-bladder disturbance. Sometimes there is hyperacidity and the case resembles ulcer; sometimes subacidity and it resembles cancer; sometimes atony and stasis from adhesions, resembling obstruction of the pylorus. In any of these cases treating the stomach does no good, and this lesson seems to me most important. One point that Dr. Moffitt has particularly dwelt upon is the importance of a careful history. When we sift down the objective evidence of gall-bladder disease by physical or laboratory examination, it is very small, and we must make our diagnosis largely upon the clinical history. If this has been carefully taken, it is usually quite definite before the end of the history is reached. Physical examination is so often unsatisfactory, and the findings on physical examination of the gall-bladder region as compared with the findings at operation are so disproportionate, that we have learned not to trust so much to the physical signs provided the history is definite.

In regard to treatment, it has seemed to me for some time past that if we could draw a line between cases of cholecystitis and gall-stones we would have the dividing line between cases suitable for medical treatment and for the surgeon. If we know that a patient has stones in the gall-bladder, that patient should have his gall-stones out as promptly as possible. On the other hand, if we can establish a diagnosis of chronic cholecystitis, we can aid by medical treatment. But so many times the history of recurrent cholecystitis resembles so closely that of stones in the gall-bladder that it is very difficult to make a diagnosis between the two. In any case where we are uncertain, it is reasonable to try medical treatment for a time and, if there is no improvement, then to send the case to a surgeon. As to the treatment, I have nothing to add to what Dr. Fulton has suggested. As he has said, an abundance of hot water should be taken, and I think sometimes we get better results by the addition of phosphate of soda or Carlsbad salts to the hot water, perhaps because patients will take it more readily if something is mixed with the hot water than if not. As Dr. Fulton has said, make the diet fit the gastric condition and give a number of small meals rather than a few large ones.

In reference to the benefit from operation—I am constantly referring my cases to surgeons, and yet

from time to time it is my experience, and doubtless that of every one of you, that after operation the symptoms recur. I have seen gall-stones recur in patients several years after operation, and I have frequently seen patients just as uncomfortable after the operation as before it was done. Surgeons admit these facts, and I only mention them because I think in every case we should consider carefully all the facts before we make promises to our patients as to what they are to gain by surgical operation.

Dr. W. F. Strietmann, Oakland: Relative to the drinking of large quantities of water, as mentioned by Dr. Fulton, I would rather believe that it is not so much a question of water simply, but rather one of water plus salts, and it seems to me that herein lies the efficacy of the spring cures. Dr. Martin H. Fisher has shown the effect of various salts on the edematous tissues, and there is no question that the first change in the inflammatory process of the living membrane is an edema.

Water alone in such tissues may flush to a certain extent, but may even increase the edema, while salts make it possible to get into the cell directly and increase the interchange of water between the cell and the circulation. As to the salt, it is not so much a question of sodium phosphate or sodium sulphate, but a question of alkaline water with a sufficient admixture of various neutral salts. The analysis of various spring waters show them to be essentially alkaline waters and the other salts vary within wide limits.

The condition of the stomach has been touched upon in the discussion and the general statement made that we see cases now of anacidity, now hyperacidity and again subacidity. Personally, I do not believe that it is quite so much a matter of chance, but feel that there is a more orderly sequence. Hyperacidity is probably the first change and goes with the irritative stage or early congestion, and I would rather believe that anacidity is the state we find in the more chronic, long-drawn-out case.

Dr. T. W. Huntington, San Francisco: In the diagnosis of chronic conditions affecting either the gall-bladder, pylorus, or duodenum, where pain is more or less constantly a factor, there is one sign which seems to be of considerable import. I refer to thickening or hypertrophy of the belly of the right rectus muscle in its upper third.

In cases, above named, if the observer stands at the foot of the patient, with the abdomen fully exposed, an appreciable elevation can be easily made out over the described area. It is necessary that good light be thrown upon the surface under consideration.

The explanation, which certainly is a rational one as accounting for the muscular hypertrophy, is easily found in the coexistent muscular contractions, associated with underlying pain of a continuous character. The sign is one to be regarded as confirmatory, rather than diagnostic.

It is encouraging to find that medical opinion has radically changed in the past few years as regards early operative interference in gall-bladder diseases. Every surgeon who has had experience in gall-bladder work has found his greater difficulties and embarrassing complications in those cases which have been deferred, and brought to operation as a last resort. These cases, as Dr. Cheney has said, present, as a legacy of the original disease, persistent symptoms, such as pain, faulty digestion and general disability.

Dr. C. G. Levison, San Francisco: Concerning the anomalous phases of gall-bladder disease which Dr. Cooper has referred to, there are several points that I think of sufficient importance to mention.

In one condition that he spoke of he did not lay as much stress upon as I think should be done, and that is where a stone is present in the choledochus compressing the portal vein; I have seen

several of these cases where the conditions produced an ascites in which the fluid was bile stained; when this condition is present, it may be by mistake treated as cirrhosis of the liver.

Another point that Dr. Cooper did not mention is the presence of a gumma compressing the bile ducts. Only recently I saw a case in which the diagnosis had been made by the family physician, Dr. Eidenmuller, who diagnosed lues and gall-bladder disease. A gumma was found compressing the bile ducts; gall-stones were also found, but the syphilis was the cause of the icterus.

Another condition simulating gall-bladder disease may proceed from the appendix. Occasionally one may encounter an appendix associated with leukocytosis, as high as 90 per cent. polys being found; icterus may also be present. When the abdomen is opened the gall-bladder is found to be normal and the removal of the appendix does away with the icterus that may have been present for a long time.

Regarding the surgical aspect of gall-bladder disease, Dr. Terry stated that he employed gauzes moistened with alboline which prevents their being saturated with the escaping contents of the gall-bladder.

My practice is to use dry compresses made by covering sheet wadding with gauze; if this sort of a pad is used 2 or 3 will do more towards packing away the intestines than a greater number of pads will accomplish.

Concerning the character of the incision to be made, in my opinion there is only one kind of an incision to make and that is a big one, large enough to easily expose the pathological conditions.

The so-called Elliott position in which the pillow is placed under the back is often productive of subsequent backache, more particularly in elderly people, and should be avoided if possible.

There is only one point in connection with the treatment of pancreatic disease, and that is the surgical treatment, and the following case is worthy of mention:

A number of years ago I was in Boston at the time when Mikulicz visited the Massachusetts General Hospital, where a case had been operated by Dr. C. A. Porter, who discovered an acute pancreatitis when the abdomen was opened. The pancreas had the appearance of a sausage and there was a question in Dr. Porter's mind as to what should be done; he made an incision through the capsule which extended from the head to the tail of the pancreas; he then drained the wound. Mikulicz at the time thought that the prognosis was absolutely bad, but the patient eventually recovered.

The treatment of pancreatic disease has not developed particularly since that time so that it is well to bear in mind the manner in which this particular case was treated.

Dr. E. H. Schneider, Los Angeles: I wish to say a few words in regard to cicatricial stenosis occurring at the junction of the cystic and hepatic ducts following cholecystectomy for stone in this region. The jaundice which is due to cicatricial stenosis occurs within a couple of weeks following operation. It comes on without any pain, progressively deepens, later is accompanied by edema and anasarca and practically always proves fatal within three years.

I have seen three such cases. Exploration in all three cases did not occur until nine months to one and one-half years after the jaundice had occurred. Operation showed the common duct to be not much more than a fibrous cord due to extension of the cicatrix and a non-use atrophy. I would therefore advise that a jaundice appearing without pain within a few weeks after a cholecystectomy should be reoperated early in order that this condition may be recognized and remedied before it is too late.

Dr. C. M. Cooper, San Francisco: I would only say that I think Dr. Levison should report those cases in which the gall-stone was present in the common bile duct and pressed upon the portal vein thus causing ascites. I have seen only one suspicious case myself and the literature contains but few references to such a condition.

Dr. W. I. Terry, San Francisco: In regard to Dr. Rixford's statement about the position, I should have spoken of the flexed position. Dr. Rixford has done a good deal in devising a table which makes access very easy in certain cases.

THE WORK OF THE PASTEUR DIVISION OF THE STATE HYGIENIC LABORATORY.*

By J. C. GEIGER, M. D., Chief Bacteriologist, Bureau of the Hygienic Laboratory of the California State Board of Health, Berkeley.

In an article written in 1910, Black and Powers¹ reported a small outbreak of rabies among dogs in Los Angeles in 1898. They also reported a fatal human case in Pasadena in 1899 and another outbreak of rabies among dogs in the Soldiers' Home near Los Angeles in 1906. In Stimson's report on Rabies,² published in 1910, California was declared to be one of the states that was free from the disease. In 1909 the present epidemic began to attract attention and two articles by Sawyer^{3,4} show the spread of the disease up to April 1, 1912. The spread of rabies has been continuous and rapid throughout the state. The toll of human deaths has been 18 and the loss of valuable live stock has been considerable. Organized efforts have been made to check its progress, but the lack of co-operation on the part of the county officials, and a bitter opposition from other sources, have greatly retarded the work so far. The presence of rabies in any given community will cause considerable excitement and the passage of numerous laws, which in time are forgotten. In presenting this paper, I am endeavoring to place before you reliable statistics of rabies as it now exists in California. These statistics are based on actual work done by this division of the State Hygienic Laboratory. It must not be forgotten that diagnostic and other work in rabies is also done by municipal and private laboratories. For instance, the laboratory of the San Francisco Board of Health has made 277 positive examinations from April 1, 1912, to April 1, 1913. Five of the animals affected were persons, 259 were dogs, 4 were cows, 2 were horses and 8 were cats.

RESULTS OF LABORATORY EXAMINATIONS.

Beginning April 1, 1912, and ending March 31, 1913, 322 examinations of the brains of animals for rabies have been made in this laboratory. Of these specimens, 7 were in such a state of decomposition as to make examination impossible. 36 brains gave negative results and 279 were found positive. 252 of the positive cases were diagnosed by the finding of Negri bodies, and the balance by inoculation into rabbits, guinea-pigs and a monkey. Of the animals affected, 4 were human, 6 were cows, 10 were cats, 2 were goats, 3 were

* Read before the Forty-Third Annual Meeting of the State Society, Oakland, April, 1913.

horses, 1 was a pig, 1 was a bull, and 252 were dogs. Within the period, no coyotes had been received, but since March 31st one has been examined at this laboratory and found positive for rabies. This is the only coyote head ever sent to the laboratory. We have received reports of the biting of 227 human beings and 234 animals by the animals proved positive by our examinations. As to months, 21 positive examinations were made in April, 30 in May, 14 in June, 12 in July, 19 in August, 15 in September, 19 in October, 30 in November, 36 in December, 22 in January, 28 in February and 33 in March. You can readily see that the examinations are very evenly distributed

proximately 176. The counties affected were as follows: San Mateo 45 positive cases, Sacramento 28, Marin 24, Fresno 21, Alameda 16, Tulare 16, San Joaquin 16, Stanislaus 14, Santa Clara 13, Kings 12, Napa 9, Placer 10, San Francisco 6, Contra Costa 6, Merced 5, Yolo 5, San Luis Obispo 4, Solano 4, San Bernardino 4, Tuolumne 3, Nevada 3, Riverside 2, Santa Cruz 2, Santa Barbara 2, Siskiyou 2, Kern 2, Madera 1, Los Angeles 1, Amador 1, Imperial 1, San Benito 1. This makes a total of 31 counties against 15 of last year.

The distribution of the cases by counties is shown on the accompanying maps.

CHART SHOWING INCREASE OF RABIES IN CALIFORNIA BY COUNTIES.



NOV. 2, 1909 TO MARCH 31, 1912

APRIL 1, 1912 TO MARCH 31, 1913.

EXISTENCE OF RABIES PROVED BY STATE HYGIENIC LABORATORY.

• HUMAN DEATHS FROM RABIES.

among the different months and that the belief in increased prevalence in summer has very little foundation in fact. The average temperature in California for December was 45° F. and our examinations for that month were 36, 3 more than for any previous month. In comparison to last year, the percentage increase of examinations giving positive results, as shown by our figures, is ap-

Adding to the 279 positive cases just reported, 277 positive cases examined by the San Francisco Board of Health and the 414 positive cases previously reported by Sawyer, we have a total of 970 cases for the present epizootic, without including the work done during the past year by a number of private and municipal laboratories.

DIAGNOSIS OF RABIES.

The technic of making the diagnosis of rabies is a very simple one. Smears are made from parts of the hippocampus by pressing some of the tissue between glass cover slips and drawing it out, using slight pressure. The smears are dried and stained with fuchsin and methylene blue by the method of Williams. The basis of a positive diagnosis is the finding of Negri bodies or the production of characteristic symptoms in inoculated animals. The presence of Negri bodies is sufficient proof of rabies, but the inability to detect them should not be taken as conclusive evidence that the disease is absent. Our experience shows that, even with considerable familiarity with the technic of examinations for Negri bodies, we are unable to place absolute reliability on the negative results of microscopical examinations. Inoculation should always be performed as a check on these negative results. It has always been the rule in this laboratory to inoculate animals when we cannot demonstrate the presence of Negri bodies, and our results have shown this to be not only sound practice but a necessary procedure. Since the beginning of examinations for rabies in this laboratory, excluding from consideration all specimens that did not arrive in good condition, 424 positive examinations were made and 49 of these, approximately 8½ per cent., were found negative on prolonged microscopical examination but proved positive on inoculation. Inasmuch as Negri bodies are not found in approximately one-twelfth of the positive examinations, a negative microscopical examination is no proof of the absence of the disease. Therefore, when a person is bitten, and the laboratory makes a provisional negative report based on microscopical examination, it is necessary for the physician to decide at once regarding treatment, considering the symptoms of the animal at the time of biting and any other evidence he may have at hand. All animals suspected of having rabies, when it can safely be done, should be put under observation for at least 10 days. The killing of the animal may obscure the diagnosis for weeks, as we may not be able to demonstrate Negri bodies by microscopical examination. According to our records, animals suffering with rabies die, as a rule, within four to six days of the first symptoms noticed.

RESULTS OF ANIMAL INOCULATIONS.

A very satisfactory method of diagnosing rabies is by animal inoculation. Inoculation is the final test for determining the diagnosis when Negri bodies cannot be detected on microscopical examination. Two methods are in common use; subdural and intra-muscular. Variations in the incubation period are frequent in both methods. Rabbits and occasionally guinea-pigs are the animals used in this laboratory. When the condition of the brain permits, the subdural method is preferred. By this method, the earliest time in which we have had a rabbit come down with the disease has been 15 days and the longest 91 days, an average of 45 days for 13 rabbits. For guinea-pigs, the earliest was 13 days and the longest 30, days, an average of 27 days for 5 guinea-pigs. The intra-

muscular method is advisable when the crushing of the brain has permitted contamination with pathogenic organisms. The brain is kept in glycerin for 48 hours, and is then ground up with physiological salt solution and injected, in doses of ½ to 1 cc., into the muscles of the animal's neck. By the latter method, the earliest time for rabbits to come down with rabies has been 12 days and the latest 60 days, an average of 30 days for 10 rabbits. The earliest time for guinea-pigs inoculated intra-muscularly to come down was 18 days and the latest 31 days, an average of 25 days for 6 guinea-pigs.

RABIES IN MAN.

Sawyer's summary of the human cases of rabies in California showed that up to March 31, 1912, there had been eleven cases. From April 1, 1912, to March 31, 1913, there were seven cases of rabies among human beings reported in California. The seven cases are as follows:

1. E. H., a man, age 69, died of rabies on June 2, 1912, in San Francisco.

On April 28, 1912, this man was bitten by a dog which was at large on the street in San Francisco. The right wrist was bitten severely on both sides. He did not begin treatment until May 3, five days after he was bitten. He took the "mild" treatment, without interruption, at the San Francisco Health Department. Treatment was finished on May 23. The virus used throughout the treatment had been secured by the State Board of Health from the Hygienic Laboratory of the U. S. P. H. and M. H. Service in Washington.

During the treatment there were no unusual symptoms. The patient was an old man who seemed rather feeble. There were no severe reactions to the treatment. During Monday, May 27, four days after finishing the treatment, the patient complained of continuous and rather severe pain in the upper part of the right side of his back and in his right shoulder. The pain extended down his right arm but was less severe and less constant there. The patient, as has already been stated, had been bitten in his right wrist. In the evening the patient was slightly delirious.

On June 1, 1912, Dr. Kellogg of the San Francisco Health Department saw the patient. At that time there were no characteristic symptoms of rabies. On the day of his death, according to his wife, he would be thrown into a "kind of chill" when swallowing fluids. On autopsy, portions of the brain tissue were examined at the laboratory of the San Francisco Health Department, and Negri bodies were found. A rabbit inoculated intracranially with an emulsion of the brain tissue came down with characteristic symptoms of rabies, which confirmed the diagnosis from microscopical examination.

2. A. B., a girl, aged 6 years, died of rabies on July 15, 1912, in Los Angeles. She had been severely bitten in the right cheek on May 27 by a dog which made its escape and was not seen again. The wound was cauterized. When seen on July 14, forty-seven days later, she had a temperature of 102° and a rapid feeble pulse. Her

face wore an expression of terror and any attempt to drink threw her into convulsions. The condition grew worse and she died the following day. We are indebted to Dr. Frank F. Clair, the attending physician, for our information.

3. J. J. R., a man about 60 years old, died of rabies on July 20, 1912, in San Francisco. This patient was bitten on June 18th by his own dog, which, judging from symptoms, was rabid at the time. The wound was on the left thumb, at the root of the nail. The patient left the wound untreated, not suspecting rabies in the dog. There were no symptoms until four weeks after the bite. The patient complained of pain in his right arm and chest. He was very restless and was unable to sleep at night. The symptoms increased, and on the fifth day of his illness the patient found that he could not swallow and complained of spasms, especially of his abdominal muscles. His breathing was difficult and the slight excitement of attempting to move about caused muscular spasms and great agitation. Noises bothered him greatly. He objected to taking fluids and almost jumped out of bed when they were offered to him. The patient died on the sixth day of his illness.

A portion of a hippocampus was examined at the laboratory of the San Francisco Health Department, and another part was sent to the State Hygienic Laboratory. Prolonged microscopic examination, at the State Hygienic Laboratory failed to reveal the presence of Negri bodies. An emulsion of the tissue was inoculated intracranially into a rabbit and into a guinea-pig on July 22d. The guinea-pig sickened on July 31st and died on August 4th, thirteen days after inoculation. The rabbit sickened on August 6th, and became paralyzed and died on August 8th, seventeen days after inoculation. The brain of the rabbit was examined microscopically and many typical Negri bodies were found.

4. F. O., a boy, age 16 years, died of rabies on July 22, 1912, in San Francisco.

The patient was bitten in the left hand by a cocker spaniel. All traces of the dog were lost. The wound was cauterized, but the Pasteur treatment was refused.

On Friday morning, July 19, 1912, 78 days after the biting, the patient complained of a headache and of feeling as though he had "the grippe." The next morning he was noticed to be breathing very deeply. He slept throughout the following night, according to the father's testimony, but in the morning (Sunday) he was worse. He was very restless and complained of drafts. He seemed highly sensitive to sounds and air currents. He showed great aversion to drinking water and said he could not drink and that his throat hurt. He explained that the act of swallowing did not actually hurt, but that he could not get the fluids down. His hands shook and he was extremely nervous. He was highly excitable and slightly delirious. The breathing was very irregular and rapid. The pupils were widely dilated and reacted slightly to light, but the patient was annoyed by the light given off by a match.

The patient stated that he was thirsty but could not drink. He objected to being offered a large glass of water, but he would swallow a little water, with great difficulty, from a small glass. The sight of a glass of water brought on increased irregularity of breathing. The pulse was fair, running between 80 and 90, and the temperature was about 99° F. He expectorated large quantities of saliva and was conscious up to three minutes before death.

At the State Hygienic Laboratory a microscopical examination of the hippocampus was made, but no unquestioned Negri bodies could be found. Some of the tissue was inoculated into two rabbits, and both came down with characteristic symptoms, and examination of their brains showed many Negri bodies.

5. M. J. S., a woman, age 37 years, died of rabies November 23, 1912, in San Francisco. This patient had been bitten on her left hand by a stray dog, two months before. Her first symptoms appeared after a severe fall. She complained of shooting pains in her left arm. Swallowing was painful and the patient was markedly susceptible to external stimuli such as drafts of air. The patient was very restless and could not sleep. After death, portions of the brain tissue were sent to the laboratory of the San Francisco Board of Health and Negri bodies were demonstrated. A rabbit inoculated with some of the same material came down with characteristic symptoms of rabies.

6. S. N., a boy, age 10, died of rabies in Sacramento, December 9, 1912.

There was no history of a bite. On December 6th the patient complained of sore throat and of pains in the muscles of his neck and in his epigastrium. His speech was altered. There was a large amount of muco-purulent secretion in his mouth. The patient was very restless and could not swallow fluids offered him. After death a portion of the brain was removed and sent to the State Hygienic Laboratory. Microscopical examination of smears from the hippocampus showed a few typical Negri bodies. Animal inoculation with some of the brain tissue proved this case to be rabies.

7. N. C. O., a girl, age 6, died of rabies on February 1, 1913, in San Francisco.

This patient was bitten by her own dog three weeks before the onset of the disease. The dog disappeared. The patient had difficulty in swallowing and a few slight convulsions. She was very nervous. There was excessive salivation, dilated pupils and some symptoms of beginning paralysis of the muscles of respiration. Examination of the brain after death at the laboratory of the San Francisco Board of Health and at the State Hygienic Laboratory showed the presence of Negri bodies. Subsequent animal inoculations proved the disease to have been one of rabies.

THE PASTEUR INSTITUTE.

The California State Board of Health passed a resolution on May 18, 1912, authorizing the State Hygienic Laboratory to manufacture antirabic virus. Previous to this, all virus used had been

obtained from the Hygienic Laboratory of the U. S. Public Health Service in Washington. On June 3, 1912, Dr. Donald H. Currie of the U. S. P. H. and M. H. Service, inspected the Pasteur Institute and approved of the equipment and methods in use. Since that date all virus used by the laboratory has been of its own manufacture. Under date of October 14, 1912, license No. 40, for the manufacture of antirabic virus, was issued by the U. S. Treasury Department to the State Hygienic Laboratory. This license was not necessary for the use of virus within the state but was an additional evidence of the safeguards used in the manufacture.

The treatments are administered by the State Hygienic Laboratory in Berkeley and at its branches in Sacramento, Fresno and Los Angeles; also by deputized bacteriologists in the City Health Departments of San Francisco, Sacramento and Los Angeles, and in the Letterman General Hospital at the Presidio of San Francisco. All treatments are administered free of charge, subject to the approval of the local health officer and the Secretary of the State Board of Health. The chief facts regarding the Pasteur Institute during the past year are shown by the following tables:

TABLE 1.

PASTEUR TREATMENTS BY THE STATE HYGIENIC
LABORATORY USING UNITED STATES GOVERN-
MENT VIRUS.

April 1, 1912, to May 22, 1912.

Where and by Whom Administered.	Number of Cases.	Deaths	Treatments Completed	Diagnosis in Biting Animals Based on			
				Inoculation	Negri Bodies	Observed Symptoms	Suspicious History
City Board of Health, San Francisco, Cal.....	46	0	1	35	3	7	
City Board of Health, Los Angeles, Cal.....	1	0	0	1	0	0	
City Board of Health, Sacramento, Cal.....	0	0	0	0	0	0	
Letterman General Hos- pital, Presidio, San Francisco	4	0	0	4	0	0	
San Joaquin Valley Branch, Fresno, Cal...	2	0	0	2	0	0	
Northern Branch, Sac- ramento, Cal.....	4	1	0	4	0	0	
Southern Branch, Los Angeles, Cal.....	0	0	0	0	0	0	
State Hygienic Labora- tory, Berkeley, Cal....	7	0	0	6	1	1	
	64	1	1	52	4	8	

The 269 people who were treated with virus obtained from this Institute came from the several counties as follows: San Francisco 150, Alameda 20, Sacramento 19, Los Angeles 19, Placer 10, Fresno 8, Merced 5, San Joaquin 5, San Mateo 5, Stanislaus 5, Marin 4, Santa Clara 3, Yolo 3, San Luis Obispo 3, Napa, 2, Tuolumne 2, Tulare 1, Santa Cruz 1, Contra Costa 1, San Benito 1, emergency request from Oregon State Board of Health 2. This does not represent the total number of people given the antirabic treatment in this state, as many patients were treated by their physicians with virus purchased from commercial laboratories. The infection came from the bites of dogs in 243

instances and in 10 cases from the bites of cats. Two persons were exposed to rabid horses, and one to a rabid cow. Two cases were inoculated from a human case. In one instance by a bite from the patient, and in the other from an accident during the autopsy. Six persons took the treatment as a precaution against exposure while doing laboratory examinations for rabies. Five persons took the treatment because of contact with human cases of rabies. The longest delay before beginning treatment was 79 days. There was also one delay of 60, one of 53 and 2 of 48 days. Excluding these extreme figures, the length of time between the biting and the beginning of treatment ranged from 1 to 32 days, and averaged 6 days.

The Pasteur treatment is not entirely devoid of danger nor is there any specific contra-indications for its use. Of its efficiency there can be no doubt. Remlinger⁵ found the percentage of failures, in 131,579 cases, to be only 41 hundredths of 1 per cent. The ill effects resulting from the treatment during the year under consideration were very few.

TABLE 2.

PASTEUR TREATMENTS BY THE STATE HYGIENIC
LABORATORY USING STATE VIRUS.

May 23, 1912, to March 31, 1913.

Where and by Whom Administered.	Number of Cases.	Deaths	Treatments Completed	Diagnosis in Biting Animals Based on			
				Negri Bodies	Observed Symptoms	Suspicious History	
City Board of Health, San Francisco, Cal.....	95	1	0	75	8	12	
City Board of Health, Los Angeles, Cal.....	16	1	0*	13	3	0	
City Board of Health, Sacramento, Cal.....	12	0	0	9	3	0	
Letterman General Hos- pital, Presidio, San Francisco	4	0	0	2	2	0	
San Joaquin Valley Branch, Fresno, Cal...	14	0	0	13	1	0	
Northern Branch, Sac- ramento, Cal.....	22	0	0	18	3	1	
Southern Branch, Los Angeles, Cal.....	1	0	0	0	0	1	
State Hygienic Labora- tory, Berkeley, Cal....	39	4	0	36	2	1	
State Board of Health of Oregon. Emer- gency request	2	0	0	2	0	0	
	205	6	0*	168	22	15	

* 1 death from myocarditis.

There was a certain amount of local reaction, occurring usually after the first week's treatment, and most marked between the 7th and 11th days. This was sometimes accompanied by malaise and slight elevation of temperature. There was usually swelling, redness, and some itching at the point of inoculation. In two instances subcutaneous abscesses developed. The only serious complication reported was a unilateral facial paralysis, which developed on the 17th day of treatment. The patient's condition has steadily improved, but there are some traces to be found nine months afterward. One boy developed a fever which lasted a week, but probably had no relation to the treatment. An exact diagnosis of the sickness was not made. One man, who was seriously ill and practically bed-

ridden in a hospital with a chronic affection diagnosed as myocarditis, died from that disease on the second day of treatment. There appears to be no possible connection between the treatment and the patient's death.

The question comes up as to who shall receive the Pasteur treatment. Any person who has been bitten by a rabid animal, or who has fresh open wounds or scratches contaminated with the saliva of such animals, should receive the treatment. The possibility of danger from the milk of rabid cows is remote, since inoculation from the sound digestive tract does not take place. Persons bitten by animals showing suspicious symptoms should have the animal put under observation for 10 days, whenever possible. Though rabies among animals is very prevalent in California, human deaths will be exceedingly few if the rules here laid down with regard to the methods of diagnosis in animals and the prompt treatment of human beings, are followed.

REFERENCES.

- 1 Black, S. P., and Powers, L. M., *Cal. State Journal of Medicine*, Nov., 1910, Vol. VIII, pp. 369-372.
- 2 Stimson, A. M., *Bull. 65, Hyg. Lab., U. S. Public Health & Mar. Hosp. Serv., Wash.*
- 3 Sawyer, W. A., *Rabies in California*, *Cal. State Jour. of Medicine*, July, 1911, Vol. IX, pp. 294-298.
- 4 Sawyer, W. A., *Rabies and its Present Status in California*, Aug., 1912, Vol. X, pp. 318-329.
- 5 Remlinger, P., *Antirabic Vaccination*, in "Bacteriotherapie, Vaccination, Serotherapie," edited by Gilbert and Carnot, pp. 76-127.

COMMENTS ON TUBERCULIN.*

By JNO. C. KING, M. D., Banning.

The program demands from me a paper on tuberculin tests. Such a paper would be largely academic, mere quotation from so-called authorities. With your permission, I will, instead, endeavor to give a rambling talk on certain phases of tuberculin that have impressed me in my daily work. No man has any right to express an opinion upon a subject he has not investigated. My interest in this subject dates from Koch's first announcement, because I was then suffering from tuberculosis. Experience soon convinced me that tuberculin was too dangerous for me to use in general practice. For some years I wrote and spoke against it. About fifteen years ago I began to restudy it and to use it—cautiously. I have always been prejudiced against its use, but for a long series of years I have made from 7,000 to 10,000 injections annually. Regarding many points connected with it I have been unable to arrive at definite conclusions. Some few questions I have definitely settled in my own mind.

To those interested I wish to recommend two books, recently published. One is a special plea for the use of tuberculin in treatment; written by one of the most enthusiastic advocates of the remedy, our own Pottenger. The other, by Hamman and Wolman, of Johns Hopkins, presents a judicial view of our present knowledge of tuberculin, and will bear reading and rereading.

The friends of tuberculin advise its use for three purposes, diagnosis, prognosis and treatment.

A fourth purpose, prophylaxis, has been more recently emphasized; notably by Von Ruck and Friedman. This prophylactic idea is by no means new. The present theory is that inoculation of very young children, prior to infection, will prevent infection. Obviously, this is the most important purpose to which tuberculin can be put. So far, the preparation to be used, the methods and conditions of use, the repetition of dose and other essential problems are embryotic in the minds of the pathfinders. Obviously, too, the value of any method of prophylaxis can only be determined after a lapse of twenty or thirty years.

My time limit precludes reference to other than salient points. The various preparations of tuberculin now exceed one hundred. Their several originators laud them separately. The users of tuberculin prefer one or another, just as various syphilographers prefer different preparations of mercury. Those in common use are O. T., T. R., B. E. and, perhaps, I. K. and watery extract. I will premise three propositions, regretting lack of time to debate them.

1st. All forms of tubercle bacilli, human, bovine, avian, even those infecting cold-blooded animals and fish, are one. Their differences depend upon adaptation to environment. This function of adaptation is common to other forms of parasitic vegetable life.

2nd. All forms of tuberculin are one, no matter how prepared. Each of them must possess the elements essential to the production of a tuberculin reaction, otherwise it is not tuberculin.

3rd. The action of tuberculin is specific. That is, no reaction will ever occur, no matter what dose may be administered, unless the subject of that dose is tubercular. Please note this statement does not necessarily imply active tuberculosis.

Practically all my work is sent to me by other doctors. Some of them write that a given patient has or has not tuberculosis, because he has or has not reacted to some tuberculin test. None of them ever describe the symptoms of the reaction. Few of them name the test. The latter is important information; for instance, if the doctor has made the conjunctival test and has secured a reaction, a second application to the same eye might result seriously. Likewise, the dose given subcutaneously should be stated. Tuberculin tests are invariably given for diagnosis or prognosis. No test should ever be made for the former purpose when the diagnosis is obvious without the test. If T. B. can be demonstrated; if the physical signs are conclusive; if the lesion is manifestly tubercular to the eye, as in the larynx, there is no need of further evidence. The tuberculin test is not justifiable. If the diagnosis is doubtful further evidence is requisite. The tuberculin test, however, is not conclusive in these doubtful cases. It is not necessary to discover whether the patient has ever been infected. It is needful to know whether there is active disease, whether the condition existing is menacing and requires treatment. From sixty to eighty per cent. of adults have been infected but only a much smaller per-

* Read at the Forty-eighth Meeting of the Southern California Medical Society, May, 1913.

centage have existing tubercular disease. Almost all who have been infected will respond to some dose or other; the exceptions will be referred to later. The test is an index of infection, not of disease, clinically speaking. Reaction only implies previous infection, not existing disease. The test, therefore, may raise more doubts than it allays. Many have held that the time, the severity or the character of the reaction is the determining factor; or, perhaps, all combined. Those who are willing to base diagnosis and prognosis upon tuberculin tests depend on the theorem that "the higher the grade of hyper-sensitiveness the more acute the infection." In my experience this is only true in a very general sense. I agree with those who maintain that "unfortunately, the degree of hyper-sensitiveness does not vary in direct proportion to the activity of the disease, but depends upon so many unknown factors that we are unable accurately to formulate its conditions." When we observe that healed lesions, or patients artificially immunized or far advanced cases may or may not react; that tests usually fail in acute miliary, meningeal and floral tuberculosis, and during the co-existence of acute infectious diseases, we feel obliged to pause and reflect. Reaction following a minute dose is supposed to signify a higher degree of hyper-sensitiveness, but that may occur in the presence of a healed lesion. A delayed reaction may occur in acute active tuberculosis. Severe general reaction may be noted when no anatomical lesion can be detected. I am sure that early diagnosis of tuberculosis is more of an art than a science; that tuberculin tests are an aid but do not reveal certainties. They are, doubtless, of more value to the expert than to the tyro, as are all other diagnostic measures. Tests have been applied to all parts of the body, the rectum, vagina, urethra, scalp, toes, etc. A few have become standard. Tuberculin reactions are various, uncertain and an unknown quantity to many medical men. We note three major divisions.

1st. The local reaction. It assumes many forms. An erysipelatous blush may appear; it may be one-quarter to several inches in diameter, painful or painless, flat or raised. It must not be confounded with erysipelas or streptococcus or other infection, any of which may follow a skin puncture or abrasion. It may consist of pimples or papules, having a pale or red base. It may be in the form of an induration, circumscribed or diffuse, beneath the skin, at the site of the needle point. One only learns the appearance and feel of these local reactions by experience. The novice may mistake many accidental conditions for the real thing. Pus never forms. Pus always means some other infection. Indeed, I have never seen even a pin-point abscess from any hypodermic injection I have given. A local reaction is never dangerous, no matter how severe it may be. It is rarely painfully annoying, but is likely to be tender to the touch.

2nd. The focal reaction. It is best observed in the larynx or in joint or skin lesions. It is

characterized by redness, heat, swelling and pain; or by each, some or all of these accompaniments of inflammation. It only occurs at some focus of infection, hence its name. In the lung it is manifested by fresh rales, with increase of excretion; maybe increased dulness. Any evidence of increased activity in the lung denotes focal reaction. Of course, the increase of activity may be merely a coincidence. We are too apt to assume "*post hoc, ergo propter hoc.*" The debate anent the danger of tuberculin tests has centered around the focal reaction. Some have argued that only good can result; that the stimulus is followed by destruction or encapsulation of the focus. Others claim that focal reaction invariably disseminates the disease, at least to contiguous parts. Personally, I have never observed permanent ill results. At the same time, I would object to the production of a focal reaction in my own lung.

3d. The general reaction. Fever is its main characteristic, but fever, also, may be a coincidence. It appears in from four to thirty-six hours, preceded or not by a chill. There may be focal pain, or general aching, or various degrees of malaise. The reaction may be so mild that the patient fails to observe it, or so severe that his physician becomes alarmed. We often commit the error of assuming that because we have injected tuberculin the symptoms which follow are due to it. All consumptives are subject to just such general symptoms and only long experience will enable us to attribute them to the real cause.

The tuberculin reaction is specific, therefore does not depend on the form of tuberculin used. Different observers contend that some particular form is best for a given test, especially for the conjunctival test. Personally, I use O. T. for all. As happens with any potent substance, the mode of its introduction into the body seems to influence the severity and character of the resultant symptoms. The subcutaneous test, made by injecting tuberculin under the skin, produces typical reactions, local, focal and general. The intracutaneous test, made by injecting tuberculin into the skin, will usually produce typical local but less marked focal and general reaction. I will not refer to the ascending doses used to produce these reactions nor otherwise describe them, because details can be found in the text books. The cutaneous test, known as Von Pirquet's vaccination, produces beautiful local results, but still fewer focal and general symptoms. In using this test it must be remembered that the skin seems to be unequally sensitive in various parts of the body. The percutaneous test, the product of Moro's ointment, which consists of equal parts of O. T. and lanolin, produces a peculiar form of local reaction and, usually, no other result. The conjunctival test seems to restrict its action to the conjunctiva. I have ceased using it owing to a couple of severe inflammatory reactions due, probably, to the presence of pathogenic cocci in the eye when the test was made. Any of these tests, however, may produce any grade of reaction in hyper-sensitive patients.

Secondary reactions may puzzle us. Thus, if a cutaneous test is made, with or without reaction, and weeks or months later a test be made elsewhere on the body, the site of the first test may exhibit a marked local reaction, providing the second test reacts. We may, indeed, term this result a focal reaction and assume that the first test has established a focus without the introduction of living bacilli. This view will, of course, be combated by many, for it introduces a new and an unknown element of danger, as well as a bizarre idea of pathology. I have several times noted this phenomenon.

A brief reference to treatment. A large number of patients sent to me have received tuberculin, but how much only the Lord knows. The milligram and its fractions constitute the basis of dosage. One tells me he has taken one C.C. and is surprised that I do not know what dose he has had. Another talks of No. 1 or of No. 6, all of which is nonsense. One C.C. of pure O. T. contains 1000 Mgrs. of tuberculin. One C.C. of Parke, Davis & Co.'s T. R. contains one Mgr. but one C.C. of Von Ruck's T. R. contains ten Mgrs. and one C.C. of Cutter's contains two Mgrs. It is confusion confounded. The best exposition of this subject is a short paper and table by Dr. Geo. H. Kress, to be found in the *Journal of the A. M. A.* for April 29, 1911. Buy the crude preparation and make your own dilutions. Make them with the same observance of asepsis that you would if arranging for a laparotomy. You will then, at least, know what you are giving and how much. Dr. Kress' paper is indispensable to any one who wishes to begin the use of tuberculin.

A patient was sent to Banning with a box containing six vials of Cutter's tuberculin and directions to use one after the other; also to call on King, if need be. The need was great. Whether the poor fellow began at the wrong end of the series I do not know. I do know that I have never seen such a deplorable result. I would as soon think of giving a patient six vials of graduated rattlesnake venom, with directions to inject them one after another. One doctor wrote to inquire what I would charge to administer two injections of tuberculin per week, stating that if the price was above a certain figure the patient could only afford one per week. Such people make a fetish of tuberculin. No doctor on earth can tell, in advance, whether the patient will require a dose every day or one each month. The effect, positive or negative, of the last dose is the only criterion that can determine the time or the amount of the next dose. I give an injection every day to all to whom I give tuberculin. The injection may consist of tuberculin or of salt water; that is my affair. I must have the patient under daily observation. One doctor told a patient to come to me and receive tuberculin for three or four weeks, when he would be well, and wrote the same statement to me. No one ever has been cured of an active tuberculosis in four weeks. Friedman to the contrary notwithstanding.

The cure is a matter of months, perhaps years; and tuberculin, if useful at all, is only one of the essentials. In my Sanatorium I would drop tuberculin before any one of a number of other measures. Another doctor sent his wife to me on condition that I should not administer tuberculin to her. Still another insisted that I must not give more than the dose he specified. In my institution I am master of the situation. Patients obey or leave. I never care much which, because I seek results and cannot get them if the patient is permitted to dictate measures. The dose of tuberculin is never a fixed quantity. To give one vial of so-called No. 1 and to follow it by No. 2 and 3 and 4, seriatim, is foolish. The patient who may need one Mgr. to-day may require only 1/1000 of a Mgr. next week.

The one absolutely essential thing is never to do harm. If harmful reactions cannot be avoided then quit using tuberculin. At the beginning of treatment one never knows the degree of sensitiveness existing. I therefore, always start with a dose of one hundred millionth of a Mgr., which, in my experience, has never produced perceptible reaction. This dose is slowly increased, not in accordance with any fixed scale or at fixed intervals of time, but as the patient will bear. The maximum dose I do not know. Doses of several hundred Mgrs. have been reported. I have never exceeded fifty Mgrs. I now have three patients in my Sanatorium who are taking ten Mgrs. daily. None of them have reacted from these large doses. Two of them were pretty far advanced when they came, a year ago, but are now arrested cases. The third was an early case and is now free from signs or symptoms of disease. I am able to report as large a percentage of cures as any I have seen published, from reputable sources, although I make it a rule not to report any patient cured unless well three years after the cessation of treatment, but how much of my results may be attributed to tuberculin I do not know.

Many who have successfully used tuberculin insist upon some scientific explanation of its action. The fact that equally qualified men have advanced quite different theories is evidence that our knowledge is imperfect. The same statement is true of most therapeutic agents. I have practiced medicine long enough to know that the science of to-day may be the rubbish of to-morrow. Our knowledge is ever increasing, never complete. My own use of tuberculin is empirical and based upon clinical experience alone. Of one thing I am assured. Tuberculin is a two-edged sword and no one can learn to use it safely by simply reading about it. After having given, perhaps, 100,000 injections I still meet with surprises and am eager to learn more about it. I would not decry any form of scientific investigation but, as a matter of fact, we know so little about the so-called physiological or any other action of tuberculin that we are not justified in basing treatment upon any theory of it.

THE INTRAVENOUS ADMINISTRATION OF DIPHTHERIA ANTITOXIN.

By RAYMOND BOILEAU MINSELL, A. B., M. D.,
Pasadena.

The administration of medication by way of the veins is not a recent invention. One of the earliest attempts at intravenous injection was made by Dr. Christopher Wren, Savillian Professor in the University of Oxford. His experiments consisted in the intravenous injection of cathartic substances and were performed upon dogs during the year 1665. E. Hale, Jr., in his Boylston Medical Prize Dissertation for 1821 quotes from an article in the Philosophical Transactions for 1667, entitled "Some new Experiments of injected medicated liquors into Veins, together with considerable Cures performed thereby; communicated by Dr. Fabritius of Dantzick." This appears to be one of the earliest authentic records of human intravenous medication. During the cholera epidemic of 1830 in London an effort was made to counteract the loss of fluid from diarrhea and vomiting by the intravenous injection of a salt solution to which had been added tannic acid and salicylate of soda.

As to who may lay claim to the first endovenous exhibition of antitoxin, there is some doubt. From the very first days of diphtheria antitoxin the serum was at times administered directly by the veins, and this practice gradually became more extensive, especially in severe and neglected cases. Based upon the brilliant results obtained by Mendel in his experiments upon the intravenous injection of drugs, it was soon found that antitoxin administered by the veins appeared to be instantaneous in its absorption; whereas its absorption after subcutaneous injection was much slower because of the time occupied by the antitoxin in traversing the lymph channels in order to reach the vascular circulation. Furthermore, it has lately been proved by Park of New York that in subcutaneous injections the antitoxin content of the blood increases rapidly in amount from the first to the twenty-fourth hour, and then more slowly for the next twenty-four to forty-eight hours, decreasing after the third day. On the other hand, when given intravenously the whole amount of antitoxin is present at once in the blood, and at the end of twenty-four hours there is more than five times as much antitoxin present than with a similar subcutaneous dosage. Park obtained the following results in two goats weighing about twenty pounds each, giving one 10,000 units subcutaneously and the other 10,000 units intravenously:

Hours after injection.	Antitoxin content of blood of goat injected subcutaneously.	Antitoxin content of blood of goat injected intravenously.
3	1 unit	85
6	2 units	75
12	5 units	70
24 (1 day)	9 units	60
48 (2 days)	17 units	35
72 (3 days)	25 units	25
168 (7 days)	8 units	10

In the light of this laboratory evidence it would

appear to the clinician that the ideal method of administration is the intravenous method, especially since experiments have shown that this method puts the greatest amount of antitoxin in the blood stream just when it is most needed early in the disease. These facts will make of interest a study of the data given below.

The diphtheria service at the Willard Parker Hospital under the control of the Department of Health of New York City is one of the most active in the United States; 1857 cases of diphtheria of every degree of severity were treated there during 1910, and in 1911 nearly 1600 cases were recorded. It was determined to test clinically in this hospital as carefully as possible the value of the intravenous injection of diphtheria antitoxin as compared with the subcutaneous method, and in order that the results obtained might be as scientifically accurate as possible, each intravenous case was controlled by a case to which antitoxin was given subcutaneously. A certain number of cases were admitted to the Willard Parker Hospital from the Borough of Manhattan north of 90th street, and from the Borough of Bronx. They were brought into the Riverside Hospital on North Brothers Island, given 10,000 units of antitoxin subcutaneously and sent down by boat within twelve hours to the Willard Parker Hospital. These cases were utilized for 21 of the control cases.

The cases selected for the series were those falling under the head of diphtheritic laryngitis and consisted of croup cases, intubated or not intubated, just as they were admitted to the diphtheria service of the hospital. The series was limited to croup cases because of their greater severity and because immediate results, either good or bad, were more apparent and easier to analyze.

In 158 consecutive admissions of this class of cases every odd admission was given antitoxin intravenously, and every even admission was given antitoxin subcutaneously in the usual manner. By this method records were obtained of a series of 79 intravenous cases and 79 subcutaneous cases.

The vein chosen for injection was the one usually found at the external side of the bend of the elbow, running downward and outward. All of the intravenous cases were children under ten years of age; 86% of them were under five years. This fact increased the difficulty in isolating the vein and very often made it necessary to cut down alongside the vein in order to expose and separate it from the surrounding fatty tissue. This often was done without any surface indication as to the position of the vein under the skin.

The procedure of intravenous injection in all of these cases was as follows: Immediately after admission the child was given a cleansing bath and taken back to the admitting room table where the cubital fossae were examined for suitable veins. The arm selected was left free and the body and other arm swathed in the so-called "mummy dressing" used in performing intubations. The skin area over the selected vein was scrubbed with green soap and alcohol, and sterile towels laid around the field. An assistant or nurse made pressure

above the elbow by grasping with the hand, or by applying a gauze pressure bandage. If the vein chosen was not prominent enough for an injection to be made into it subcutaneously, an incision never more than an inch in length was made alongside the vein, which was exposed for perhaps three-quarters of an inch and raised up on a grooved director. The pressure around the arm was then released. In the early cases in the series a sharp pointed needle was inserted into the lumen of the vein, but it was soon found that unless extreme care and skill were used the point of the needle was very apt to wound the opposite wall of the vein, causing an obstruction to the flow of the antitoxin. In some cases the point of the needle would pass completely through the opposite wall, so that the antitoxin entered the perivenous areolar tissue instead of the lumen of the vein. Because of these difficulties it was found more expedient to cut off the point of the needle and to convert it into a cannula, the end of which was inserted for the distance of an inch into a small longitudinal slit in the wall of the vein.

The isolation of a surface vein in a child is not difficult, if the operator has had practice upon a child's cadaver and has performed a few intravenous injections in a living child. The most difficult cases are those of two years and under, in which there is present a considerable amount of fat. In children of five years and over, particularly if they are poorly nourished, it is usually possible to distend the veins crossing the cubital fossa by manual compression of the arm. In many of these cases it was possible to enter the vein with the point of a sharp needle without a preliminary incision in the skin. In every child, irrespective of age, a prominent vein was sought into which to insert the needle through the skin without incision. In one child, two and one-half years old, it was possible to introduce the needle into a superficial vein just below the left nipple without a skin incision. The veins of the neck, however, were never selected because of the possible danger of air embolism in a dyspneic child.

When entering a vein by a subcutaneous puncture, care should be taken that the point of the needle is surely within the lumen of the vein, and if there is any doubt, the needle should be withdrawn and the vein cut down upon. If the point of the needle is not within the lumen of the vein the operator will notice a slightly increased resistance to the pressure on the piston of the syringe and an increasing swelling over the site of the injection, showing that the antitoxin is entering the areolar tissue surrounding the vein instead of the lumen. While it is doubtful if this accident could cause any harm, yet on account of the distortion, it renders it almost impossible to use the same arm for intravenous injection, and proves only to be a most painful and clumsy method of administering antitoxin subcutaneously.

Anesthetics were not used in very young children, inasmuch as the operation seemed no more painful than the subcutaneous method if skillfully employed. In older children ethyl chlorid was of service. At first it was feared that the shock of

the incision to very croupy cases would affect the child to such an extent that immediate intubation would be necessary, but this proved not to be the case.

The antitoxin used in this series, prepared by the Department of Health of New York City, was of good strength, containing 2500 units of antitoxin to the cubic centimeter. The product was of the highest possible grade of refinement. It was put up in glass syringes, each one of which contained four cubic centimeters, or 10,000 units to the syringe. One end of the syringe was occupied by the wooden handle of the piston; the other end was closed by a tightly fitting rubber stopper pierced by a minute hole. The outer end of this rubber stopper was sterile and was covered by a piece of paraffin paper which was removed just before using the syringe. The needle was furnished wrapped in tissue paper and put up in a sterilized glass tube. Both ends of this needle were pointed, with a collar in the middle of the shaft; one end was thrust through the hole in the rubber stopper until it penetrated the cavity of the syringe, the other end was inserted into the slit in the vein. Care was taken, of course, to expel all air from the syringe and to fill the lumen of the needle with antitoxin before injection. With this apparatus it was almost impossible to contaminate the antitoxin before it reached the blood stream.

One of these syringes was placed in water at 100° Fahrenheit. Antitoxin fresh from the icebox or at room temperature when injected intravenously has sometimes caused a collapse that in some cases might prove fatal, especially if a diphtheritic myocarditis has begun. Two such instances have come under the observation of the writer. Two male adults were given intravenously 10,000 units of antitoxin which was taken out of the icebox and administered without warming. Within five minutes in each case a severe chill set in, accompanied by a thready rapid pulse, slight respiratory distress and a terrible feeling of oppression. The bulk of antitoxin in either case did not exceed five cubic centimeters. The warming of antitoxin, therefore, to body heat is an important point to be remembered, and in order to promote rapid absorption this should also be done when administering it by the subcutaneous method. It should further be borne in mind that antitoxin coagulates at 60° Centigrade.

Injections of antitoxin, whether intravenous or subcutaneous, should be made slowly. After intravenous injections, if an incision has been made, the wound may be closed with a single stitch and a sterile or alcohol dressing applied. It was seldom necessary in this series to ligate the vein, a simple pressure bandage sufficing to stop the flow of blood.

In order to check the results, the resident physician in charge of the diphtheria service was required to set down in a book opposite the name of every croup case admitted his prognosis of the case. For convenience all cases fell into three classes in regard to prognosis: a good prognosis, a doubtful prognosis, and a bad or hopeless prognosis. It proved most instructive in looking over the charts to see how the prognosis set down on the admission

tallied with the termination. It was not long before it was realized that almost every child entering the hospital with a broncho-pneumonia went on to a fatal termination without regard to the amount of antitoxin administered, and the prognoses began to be guided accordingly.

In order to determine whether we have to deal in our series with a more malignant type of diphtheria than usual, it is useful to compare the death rate of the series with the total death rate of the Willard Parker Hospital for the previous year. This yearly report does not differentiate between intubated and non-intubated cases of croup, and gives the death rate for intubated cases only. During the year 41.3% of all intubated cases died. The death rate for the 158 cases of the series is 49.3%, and this percentage compares very favorably when we consider that the 41.3% in the yearly report does not include the croupy cases not intubated, and represents the death rate for the entire year, while the death rate of 49.3% of the series represents a death rate of cases occurring only from December to May, a time when the death rate is normally high.

On the basis of these percentages it seems fair to assume that the type of infection which was encountered in the 158 cases of the series was not more severe than normal.

Upon examining the records of the cases the most startling fact is the prevalence and almost absolute mortality of broncho-pneumonia. With regard to the prevalence of this disease, so often a terminal event in the morbidity of childhood, nearly half of the cases in the series were infected with it; 77 cases out of 158 developed broncho-pneumonia either before or a day or two after admission, a morbidity of 48.7%. This percentage corresponds very nearly with the total death rate of the series (49.3%), and, indeed, only 5 cases of broncho-pneumonia recovered, making a mortality of 93.5% for the broncho-pneumonia cases in both series. The prevalence of broncho-pneumonia among the subcutaneous cases was slightly greater (51.9%) than among the intravenous cases (45.5%). On comparing the mortality between intravenous and subcutaneous cases of broncho-pneumonia, the intravenous cases stand somewhat better. Of the subcutaneous cases developing broncho-pneumonia 97.5% died, while of the intravenous cases only 88.8% died.

It will be seen, then, from these figures that half, at least, of our burdens in the treatment of diphtheritic laryngitis in hospital may be laid to the charge of a pulmonary infection. It was soon discovered that if a child had developed broncho-pneumonia, the amount of antitoxin, the method or the time of its administration made almost no appreciable difference in the course of the disease. In other words, in nearly every croup case infected with broncho-pneumonia the laryngeal mischief was overshadowed by the pulmonary infection to such a degree that death usually supervened before it could be fully decided as to the efficacy of the serum treatment.

A somewhat clearer picture of the results is ob-

tained if we exclude the cases complicated by broncho-pneumonia and calculate the death rate for the entire series of intravenous and subcutaneous cases. Out of 81 cases not developing broncho-pneumonia only 6 cases died—a mortality of 7.4%.

The comparison of intravenous cases not developing broncho-pneumonia, with the subcutaneous cases of like character, shows that 4 out of 43 intravenous cases died—a mortality of 9.3% plus. But of these four cases, one (case No. 83) died 41 days after admission of a sudden cardiac failure after having been pronounced well enough to go home. Another case (No. 111) died on the 58th day after admission of inanition. When we compare this record with the subcutaneous cases we find that there were 2 deaths out of 38 cases—a mortality of 5.2%, plus, and one of these deaths (case No. 124) was from meningitis on the 61st day after admission, having been held in the hospital for a suspicious desquamation. If we exclude these deaths not actually due to laryngeal diphtheria, the percentages will read:

	Cases.	Deaths.	Death Rate.
Intravenous	43	2	4.6%
Subcutaneous	38	1	2.6%
Totals	81	3	3.6%

If now we calculate the total death rate of the entire series, irrespective of the occurrence of broncho-pneumonia, we have the following figures:

	Cases.	Deaths.	Death Rate.
Intravenous	79	36	45.5%
Subcutaneous	79	42	53.1%
Totals	158	78	49.3%

None of the above percentages show any decided advantage in favor of the intravenous method.

The records of the cases appended herewith may require a word or two of explanation. In nearly every case it was almost impossible to get an accurate history of the child's illness before admission. The most that could be obtained was an approximation of the number of days that the child had been ill.

The variation of the number of days spent in hospital was due to several causes. A frequent cause of detention was the persistence of a croupy cough after the subsidence of acute laryngeal symptoms, or after extubation. It has been the practice of the writer to keep the child under observation in the ward for at least ten days after extubation, or for five days after a croupy cough has disappeared.

Another cause of detention was the persistently positive Klebs-Loeffler cultures obtained from discharging ears or noses. Several cases in the series were treated with a pure culture of lactic acid bacilli in the hope of obtaining a negative culture, but to no avail. Four cases in the series who had a slight discharge from the nose containing diphtheria bacilli by culture were treated locally with an ointment composed of solid antitoxin rubbed up in lanolin. No change in the culture reports was apparent. Other causes of detention were desquamation, a weakened first cardiac sound, and chronic auto-extubation.

The average number of days spent in hospital was 15.6 days for the entire series; 18.3 days for

the intravenous cases, and 13.0 days for the subcutaneous cases. The average number of days ill before admission for the entire 158 cases was 2.9 days. The average age of all the children was 2.6 years.

The great majority of the intubations were done in the hospital or by the ambulance surgeon immediately upon his arrival in the home. Where a case is noted as having been intubated before admission, it is meant that intubation was performed by an outside physician before the arrival of the Department of Health ambulance. Twenty cases of the series were so intubated. Unless otherwise specified, whenever a case is noted as having been intubated after admission, it is meant that the case was intubated on the day of admission. No note has been made of trial extubations, re-intubations or auto-extubations. The total number of days that the tube is worn is given, except where a child has died with the tube in situ.

Unless otherwise stated, the dose of antitoxin was 10,000 units.

Although the number of cases in which intubation was not necessary is given, together with the number of days that croupiness persisted in these cases, it should be understood that the object of this series was not primarily to prevent intubation, but to serve as a basis of comparison between two well known methods of antitoxin medication.

Conclusions.

1. The intravenous administration of antitoxin in young children, although not always easy, is perfectly safe when done with skill and care.

2. The operation does not, as a rule, commend itself to private practice and ordinarily should be performed only under the best of conditions.

3. There appears from a study of 158 cases to be so little clinical difference in the results obtained from the intravenous and subcutaneous exhibition of antitoxin that we are not warranted in asserting that one method is more efficacious than the other.

4. Except in severe septic cases, therefore, and cases seen late in the disease, the subcutaneous method is to be preferred.

5. Antitoxin given subcutaneously should be given in large initial doses.

SUMMARY OF CASES.

	Intra- venous.	Subcu- taneous.	Totals.
Broncho-pneumonia before admission	22	32	54
Broncho-pneumonia after admission	14	9	23
Total cases of broncho-pneumonia	36	41	77
No broncho-pneumonia present	43	38	81
Intubated before admission.....	2	18	20
Intubated after admission.....	46	35	81
Total of all cases intubated....	48	52	100
Total cases not intubated.....	31	26	57
Died	36	42	78
Recovered	43	37	80
Pneumonia cases died.....	32	40	72
Pneumonia cases recovered....	4	1	5

BACTERIOLOGY OF THE URINE IN RELATION TO MOVABLE KIDNEY.*

By DAVID HADDEN, M. D., Oakland.

In the January STATE JOURNAL you will find some of my conclusions resulting from the study of the bacteriological examination of the urine. That paper deals mainly with bladder inflammations. At present I have nothing to retract on that subject, but can add as a further conclusion that in the inflammations produced by the presence of the bacillus coli communis, it is a difficult if not almost impossible matter to succeed in getting a sterile urine in many cases. The patients are practically well, have no symptoms, and gain in weight and general well-being but yet cultures give a growth. The other infections that I have encountered clear up even if associated with the colon.

Some bacteriologists believe this continuance of the colon bacteriuria is due to the low type of the organism and the character of the mucous membranes of the bladder rather than to the fact that the colon is naturally a habitant of the body and proof against its defenses.

The basis of this paper also is the data obtained from bacteriological examinations of the urine.

In the last volume of the "International Clinics," Burnett of Edinburgh writes: "Workers in this field at present are but pioneers and our knowledge but scanty. In fact, I am more and more convinced that we have still a wide field before us, in the bacteriological study of the urine in disease, and I feel that the time is not far distant when a bacteriological examination of the urine will be regarded as of even greater importance than ordinary chemical investigation."

Wood, of St. Luke's in New York, told me he would consider any coccus in the urine pathological. In his book he states that the bacteria that may be found in the urine are very numerous. But the important species are the colon typhoid, streptococcus, staphylococcus, gonococcus, and tubercle. He emphasizes the differentiation of the tubercle from the smegma bacillus as the smegma are common in urine and may be even in a "catheterized specimen." "The gonococcus and the tubercle bacillus are the only species in which a morphological examination is of much value." And later: "The only morphological diagnosis which is allowable is unfortunately confined to two species, the tubercle bacillus and the gonococcus." And again: "The casts give positive evidence of a kidney lesion."

Zinsser has nothing to say on the bacteriology of the urinary tract except to state the necessity for a catheterized specimen.

The experience of Dr. Sawyer of the State Hygienic Laboratory at the State University in making cultures of urine for typhoid has been that where the bacillus of typhoid was not present, the culture was negative.

Osler's new work gives but one short paragraph to bacteriuria and later states as his con-

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

clusion that vaccines have been used a great deal but with little benefit.

Guiteras in his new work says that "Although germs have been found in the urine of healthy persons, the majority of investigators state that the urine in health is sterile, provided it be obtained by sterile instruments and under proper precautions. During and after infectious diseases germs are often found in the urine. Experiments have proven that the urine possesses bactericidal properties in health and shown that the absence of bacteria from normal persons may mean that the germs have been destroyed by virtue of this property. The acid potassium phosphate supposedly being the protector, the neutralization by alkali destroys the bactericidal property. Possibly the chloride may also act."

Some laboratory workers believe the bactericidal action is the result of the presence of an ingredient of the nature of a ferment rather than a definite chemical substance, for as with blood the property is lost a few hours after voiding or with a moderate increase in temperature. A urine stasis would readily account then for sufficient change in the chemistry to destroy the bactericidal property.

By far the most elaborate article I have come across is by Thomas R. Brown, in Osler's *Modern Medicine*, and from that I quote a few statements which have a bearing on the movable kidney. "It is important to remember that the epithelium of this tract is extremely resistant to infection, and that in the vast majority of cases certain predisposing factors must be met with before inflammation is set up. The weight of evidence, however, certainly points to the belief that the urine of healthy individuals, if obtained under careful precautions, contains no bacteria. That the organs and urine of absolutely normal individuals are free from bacteria has the weight of authority, and thus, at the present time at least, it is not fair to assume that we may have autogenous infections of the kidney."

The bacteriology of the urine is thus briefly handled in the most recent works.

I shall limit myself here to the subject of "movable kidney" unassociated with hydronephrosis, stricture of the ureter, pyelitis or other possible later complication.

As late as last September, Hedges in a paper read before the American Gynecological Society writes as follows and to his statements no exception was taken by those present:

"Reverting to the subject of neurasthenia just a word about floating kidney. We frequently find these two conditions in the same patient and used to jump to the conclusion that the movable kidney was the cause of nervousness but fixing the kidney did not cure the nerves. If in one of these cases there are severe paroxysms of pain due to kinking of the ureter or pelvis of the kidney and during these attacks of pain or just afterward marked urinary changes occur then we are warranted in fastening the kidney. Morris has recently called attention to the splint-belly rigidity of the muscles overlying the organ on

the same principle that the rectus protects an inflamed appendix. It seems only reasonable that a moderate amount of nephroptosis should be harmless just as a moderate sagging of other viscera gives rise to no unpleasant symptoms."

Quoting from a personal communication from Dr. Guy L. Hunner of Johns Hopkins': "I suppose you refer in your question to the cases mentioned of stricture of the ureter. Of course, many of my hydronephrosis cases are due to ptosis of the kidney, the hydronephrosis developing because of an aberrant vessel as suggested by Mayo, or because of the ptosis of the kidney while the ureter is being held in its original position by the periureteral bands of the peritoneum. As to the bacteriological findings, it is rather significant that in my cases of stricture of the ureter which I credited to tonsil infection or toxemia, the infection has been by the staphylococcus unless the urine was sterile. As you know, most hydronephrosis kidney infections from all causes are by the colon bacillus."

Osler says far too much attention is given to the condition which is often associated with neurasthenia.

"It is incontestable," says Lepine, "that a displaced kidney is predisposed to the development of nephritis. Kinking of the ureter may cause changes in the excretion of the urine but also stasis in the canaliculi which is very favorable to the infection of the kidneys."

Strumpell says: "In a great majority of cases of floating kidney we have to do with those familiar and frequent conditions of a nervous character which are termed hysteria or neurasthenia. It is not always advisable to apprise the patient of the fact, for with a person of this sort the mere idea of possessing a 'floating kidney' is enough to stir up a host of subjective symptoms—unless you wish to use it for suggestive therapeutics." He advises eliminating every possible pathology before crediting the floating kidney with importance.

I quote the following statements from Dieulafoy's latest work on medicine. "Edebohl, Box, and Newman have claimed to cure one-sided nephritis by fixing a movable kidney—cases where the kidney was enlarged, painful and the albumin abundant. The movable kidney was supposed to be exempt from lesions for a long time. Although the cases reported by Edebohl do not give all the medical details of the question, it is none the less true that people with movable kidneys have albuminuria. The albumin is present in 14% according to Schilling. The term Bright's Disease implies the idea of bilateral nephritis. The presence of albumin and casts in the urine is not sufficient to prompt the diagnosis of Bright's Disease. This confusion is made by surgeons. It may falsify our ideas. I am of the opinion that some of the cases are due to tuberculosis. In some of the published cases, nevertheless, it does seem that tuberculosis was not present and that they were really cases of chronic unilateral nephritis without pain and hematuria. It is certain that results of surgical intervention are often

excellent in unilateral acute or chronic nephritis, but it is indispensable to state clearly the indications and contra-indications and select cases amenable to operation. For the time being we are unable to answer this question because many of the published accounts are incomplete from a medical point of view. I am convinced, however, that this gap will soon be filled."

It looks to me as if this gap may be filled in the bacteriological side of urine examination.

The consensus of opinion seems to be that a movable kidney is very common, and may occasionally be associated with diverse morbid conditions without causing original symptoms, but this is a very questionable diagnosis, and a movable kidney that is definitely giving trouble must have pain, hematuria, and abdominal tumor, with possibly gastralgia, nausea, and vomiting and occasionally an intermittent hydronephrosis.

All writers acknowledge the coincident occurrence of mental and nervous disorders and movable kidney, but none see any significance in the fact or offer any explanation. Alienist writers are showing the variations in blood pressure that are coincident with the aggravations of mental disorders and are inclined to look upon toxemia as a cause and that probably of intestinal origin. A clinical study of the urine in cases with movable kidney in connection with this blood pressure investigation should be of interest.

I propose to deal now with the kidney that can be easily palpated below the ribs—the kidney unassociated with enteroptosis. In women such a condition is exceedingly common and according to all authorities occurs more frequently on the right side on account of the kidney being less firmly fixed, placed below the great mass of liver above, and pulled upon by the colon below.

I am beginning to feel that left-sided ptosis is more frequent than generally supposed and that it is in many cases unassociated with right-sided. Dr. Moody's findings in the anatomical department of the University of California show the left kidney down about as frequently as the right. A right-handed examiner does not so easily palpate the left kidney; the patient's stomach, transverse and descending colon are likely to be more or less distended; the absence of a heavy organ like the liver on the left side gives more elasticity and the kidney slips back more readily on expiration. These reasons make it easily possible to overlook the condition.

Such a condition I imagine is in most cases caused by a recurrent rather than a sudden strain of some sort, probably in some cases associated with loss of weight through absorption of fat deposits. The orthopedists would have us believe that improper posture was the underlying cause and while I do not deny that that factor is a most important one in the production of ptosis, I should look for more evidence than the displacement of one or even both kidneys as entities. I think I have proof that in some cases the "slump" position is taken in order to protect the already low and tender organ. Longyear's claim for the relation of colon and right kidney

through the "nephrocolic ligament" I am satisfied has considerable basis. We all have seen the close relation of the inflamed appendix with movable kidney. However, not every case of even right kidney ptosis is associated with sagging colon, and in not a few cases the left kidney alone is out of place. If both kidneys are low a general enteroptosis is present as a rule.

I wish to call your attention to three cases.

Miss C., aged 24, complains of severe pain at menstruation, relieved when flow commences. Has some pain after urination and occasionally has to void frequently. Vulva sensitive when seated. Has been under the medical men in the east. Examination shows introitus normal except for eroded area external to fourchette. Uterus slightly retroverted with cervix flexed on body so that os and fundus are in line; os very small. Appendages on left side thickened. Right kidney low, tender, enlarged, tenderness along course of both ureters. Examination of urine gives trace of albumin. Specific gravity 1020 with some cell detritus and on culture the staphylococcus alba. Cystoscope shows bladder normal except for some congestion at orifice of right ureter. Catheterization of ureters gave twice the quantity of urine from the right side with a specific gravity of 1006, trace of albumin, occasional leucocytes but no casts. Animal inoculation of separated urines gave no results. X-Ray pictures were negative. Vaccines and systematic treatment gave some help but did not cure, though for weeks at a time urine would be normal. A thorough dilatation of the cervical canal done previously to the investigation of the kidneys cleared up the menstrual pain.

Miss M., aged 36, complained of backache dating from fall two years ago. Had a definite Deitl's crisis in October, 1911, followed by suppression of urine and a temperature of 103° with uremic symptoms. Had a pulmonary tuberculosis some years ago. Examination shows practically normal though somewhat undeveloped pelvic organs. Abdomen has scar from an appendectomy done six years ago at which time there was no kidney condition. Abdominal palpation presents a very tender somewhat enlarged low down right kidney—left kidney not palpable. Investigation of urinary tract shows a normal bladder with a depressed opening of right ureter. The urine from the right kidney showed 125 c.c. in an hour and returned 15%. Phenol sulphophthalein was clear in color and excreted in continuous drops. The left urine totaled 110 c.c. and gave also 15% coloring matter. The microscopical examination showed a few white blood cells and some granular debris with the greater quantity on the left side. A trace of albumin was present in the left urine. Bacteriological examination of the right urine showed a streptococcus and a large bacillus, of the left the large bacillus alone. The guinea pig inoculation showed no evidence of tuberculosis. There was no evidence of stricture or hydronephrosis.

Miss B., aged 25, has been in many physicians' hands with varying diagnoses, with conformity by only two on a tuberculosis of the right kidney. She is better now than for some years but suffers from severe backache and pain in abdomen and diarrhea with much fresh blood. Had a hip trouble fifteen years ago. In 1908 tubercle bacilli were found in the urine, and improvement followed tuberculin. Examination shows an enlarged, tender, movable kidney low down, no ptosis of the left. The cystoscope shows no bladder abnormality. The quantity of urine from each kidney is practically the same, but the right shows more normal character of flow. The phenol sulphophthalein shows up in four minutes from the right side and in four and a half from the left. The proportional elimination is the same with a total

return of 60% in two hours. The urine from the left kidney gives twice as much urea, both show a trace of albumin and some blood cells but no casts. Bacteriological examination gives a streptococcus and a staphylococcus. The guinea pig inoculation is negative.

In these three cases I imagine we have the "unilateral nephritis" of Dieulafoy. He believes that many are due to tuberculosis. I would go a step farther and add that all of them are germ conditions and in no sense a "Bright's Disease" but are secondary to a displaced kidney interfered with in function. And I believe that in the bacteriological examination we have our data for the exact medical classification he desires. You have seen that in neither case was the other kidney uninvolved but it is usually with a less pathogenic germ and probably of a more sympathetic nature, for the unimpaired function shows that a Bright's disease does not exist. I have shown, I think, that we can not cure these cases without support and I believe operation is indicated. These cases are the type of movable kidney that one can not overlook on account of the local symptoms, but the following cases I have selected to show that before that stage is reached the movable kidney is giving trouble and is gradually developing into the gross type:

Mrs. D., age 30, has had one child born in a difficult labor. Three years ago had a good surgeon correct the pelvic pathology. Her present complaint is backache and pain in the right side and a bladder which voids excessively when she is tired. Examination shows a fairly normal pelvis and good results from the plastic work. She has a low tender right kidney and tenderness at McBurney's point; a frequent concomitant of movable kidney and seldom indicative of appendix inflammation in these cases. The urine gives a growth of a staphylococcus with a few streptococci. A corset has stopped the back and side ache, which was partially due to a tender sacroiliac joint and partially to the kidney ptosis.

Mrs. H. B., age 40, complains of attacks of weakness in the left side and sometimes when the bowels move. These came on after helping her neighbors move a heavy table. I myself corrected some pelvic pathology seven years ago. Following these weak feelings the quantity of urine is increased and the frequency of voiding greater. The patient has a low tender movable left kidney. The urine gives staphylococci. The patient is too thin to get a perfect corset fit but the best we can do has improved her much.

Mrs. E. B., age 27, no pregnancies, operated for retrodisplacement by one of our best surgeons three years ago but still continues to be weak, nervous, nauseated, and subject to headaches with pain in bladder after urination. The bladder has been abused by the stitching of the uterus to the anterior abdominal wall, otherwise the pelvis is normal. The right kidney is movable and tender, the left less so. There is no enteroptosis. The urine gives a staphylococcus. The patient is improving with her corset and the medical treatment.

Mrs. P., age 31, referred on account of a badly lacerated cervix. Has worn a kidney belt the last year to correct a right kidney ptosis which supposedly came from a bad fall. After the correction of the cervical condition, a corset was advised in place of the belt which had aggravated the pelvic pathology. The right kidney was easily palpable, also the left, less so, but neither tender. Two bacteriological examinations of the urine at two months' interval gave sterile results. A month ago, or six months after corset was first

fitted, the patient returned complaining of some dragging feeling in the right side. It was found that the corset had stretched sufficiently to allow the kidney to remain lower than normal on the right side. The organ was tender and the urine culture gave a streptococcus and staphylococcus albus.

Mrs. N., age 24. Never pregnant. Complains of backache and bladder irritation, general weakness and painful menstruations. Has been through several minor and major operations, is now wearing a stem pessary to correct a supposed stenosis. Pelvis considerably congested, probably accounting for the bladder irritation, as urine examination chemically and bacteriologically is negative. Right kidney movable, slightly tender. Bacteriological examination of the urine in October and December negative. The pelvic congestion, painful menstruation, and bladder irritation have cleared up with local treatment and discarding of pessary. In March came complaining of weight and drag in right side. Examination showed poorly fitting corset and staphylococcal infection of urine. A new corset corrected the symptoms and now three weeks later the urine is sterile.

These cases are a good example of a large class of patients who at the present time are drifting, many of them already operated upon for pelvic pathology without complete relief. I realize that it is too early to make any too positive claims for the culture in certain types of urinary tract conditions but I am compelled to believe on account of the uniformity of results that in every case in which the condition can be considered pathological, we have evidence in the urine, eliminating possibly, of course, some cases which give the acute crises. Catheterization of the kidneys with separate bacteriological examination ought to be done in these cases to make the findings accurate but I hardly feel one is justified in private practice in interfering unnecessarily with the ureter.

You may well ask why so many displaced kidneys give no symptoms. I believe that every displaced kidney is a latent possibility for trouble but as long as the individual is in good physical condition, the peristaltic action of the kidney, pelvis and ureter is maintained and this prevents urine stasis. This peristaltic action is of vast importance in preventing the posture of the patient from interfering with the kidney function. In the catheterization of the ureters of such kidneys as described in the three cases of the so-called "unilateral nephritis" quoted, there is an absence of the rhythmic action of the muscles so that the urine leaves the catheter from the affected side in continuous drops. In any kidney sag it is then only a question of time when the overworked muscles will stretch as does a labored heart, and thus permit stasis of the urine, and through the alteration of the chemical contents, furnishes a medium on which certain germs entering from the neighboring organs or from the blood stream can grow. Whatever congestion results will add to the handicap under which the organ works. It is not a question so much as to the kind of germ present as it is the absence of sterile urine which is of significance in movable kidney, though I hope to be able to show at a later date that the grade of pathology depends on the character of the infection and also to present something of

value in conjunction with Dr. Archibald from the bacteriological side as well as the clinical.

In the treatment of movable kidney the correction of the ptosis is of first importance. I have shown the necessity of correcting bladder sag in order to cure a cystitis and the principles involved here are similar. We have a certain amount of stasis and with this stasis the urine is altered and loses its supposed antiseptic action, so of prime importance is the giving of drainage and not until then can we expect results from vaccines.

The best method of correcting the ptosis is a debatable question at present. We have swung strongly from the kidney fixation, largely, I believe, because too many tried to cure movable kidneys associated with enteroptosis that way. The cases not being segregated, many a movable kidney was corrected when the pathology from which the patient suffered was situated elsewhere. Again, many cases recurred, accounted for by one of two causes: those enteroptotic cases where kidney fixation without support of the other organs could never be expected to stay; secondly, the neglect of the abdominal support so necessary to use until the kidney has had time to reform its own bed and to give the patient a proper carriage. If our patient can be fitted with a proper front lacing corset, we have the means of testing out our diagnosis as we have with a pessary in bladder ptosis; but that, of course, is only a palliative method. Against the regular kidney belt I wish to enter a protest, for no other abdominal contrivance has such a power for evil in developing congestion in the pelvic organs. The two-part surgical corset in a thin individual, I have seen produce kidney crises by pinching the ureter and in the same type of individual the hope of fitting any kind of support is rather forlorn.

Having proven the condition of the patient to be due to the kidney ptosis, the type of operation to be done opens fresh opportunity for study. I am inclined to the method of Longyear combined with the fixation of the capsule, for we probably correct a colon sag if present. If my contention that the presence of a bacterial growth in the urine proves the kidney ptosis to be the cause of the pathological symptoms is correct, I believe that in the properly segregated cases we shall be doing more and more kidney fixation and after operation fitting rational corsets to our patients.

My premises, then, are:

That normal urine is sterile.

That the greater number of chronic urinary tract infections are associated with a bladder or kidney ptosis or both.

That the "unilateral nephritis" is a condition of infection having as its origin a kidney sag.

That many movable kidneys are without pathological significance because the muscle tone is unimpaired.

That when this muscle tone becomes impaired we have urine stasis and infection.

That every movable kidney is a latent source of trouble.

That in the bacteriological examination of the urine we have a means of diagnosing the pathological "floating kidney."

That the degree of symptomatology depends on the kind of infection and the sensibility of the patient.

That being able to diagnose positively a pathological "floating kidney" we will consider more seriously the operative treatment and the type of operation, for at best the kidney support is only temporary and often impossible of proper application.

Discussion.

Dr. J. Henry Barbat, San Francisco: Just seven years ago I read a paper on enteroptosis, but did not bring up the subject of the bacteriological findings in the urine. At that time I spoke of Edebohl's operation of decapsulation of the kidneys for nephritis, and showed that the cases which were really cured were those in which the kidneys were not organically diseased, but merely disturbed functionally, as the result of displacement.

Regarding the lacing of corsets, it does not matter whether the corset is laced in front or in back, if it supports the abdominal organs and kidney as well. The great difficulty is to get a support which will act in every case. We are far from perfection as yet and must use judgment in selecting appropriate measures to fit each case. The best corset which I have found is the long, straight front one with a heavy front steel. When the corset is laced there must be at least one inch between the lacing steels, so as to maintain the tension. As soon as the lacing pulls the edges together at the bottom, the corset no longer offers any support, and must be taken up. The top should be loose enough to allow the hand to go down to the waist line.

CARBOHYDRATE CURES IN DIABETES.*

By E. SCHMOLL, M. D., San Francisco.

A few years ago when Naunyn wrote his classical treatise on diabetes, the treatment of this metabolic disturbance seemed to be established on a foundation equally supported by our theoretical conception of the nature of the disease as well as by practical experience. I remember that, at that time discussing the pathology of glycosuria, Prof. Alonzo Taylor and I agreed that it was the clearest chapter of the pathology of metabolism, and that the only point needing further investigation was the prevention of acidosis.

Few years have passed since. To-day everything that seemed to be established, is again under discussion. The points on which our theoretical conception is based, are the centre around which the battle of scientific argumentation is fought. No development in the history of medical science demonstrates more clearly that the theory can only be viewed as a temporary résumé of all the known facts, and that any new phenomenon which cannot

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be accounted for, has to lead to a complete change of our theoretical conception.

Few facts in therapy are better established than the improvement of the diabetic disturbances under treatment leading to a disappearance of glycosuria. The secondary disturbance, like loss of weight, tendency to infection, pruritis, etc., fade as soon as the sugar disappears from the urine.

In the immense majority of cases, the carbohydrate contents of the food are the determining factor in glucose excretion; in a minority consisting principally of the severe cases, the glycosuria varies with the amount of proteid given in the food. Restriction of carbohydrates in the first class of diabetics, cutting down of the proteid contents of the food in the second, leads generally to a disappearance of the glycosuria and a marked improvement in the patient's conditions. These facts established by Naunyn and his school, constituted the basis on which our treatment had been built up.

Occasionally, however, certain cases were observed in which diabetics seemed to derive benefit from the feeding of carbohydrates. Certain cures were advocated in which the principle factor seemed to consist of feeding large quantities of carbohydrates like milk, rice, potatoes and milk sugar. They appeared, however, so irrational that they rapidly fell into oblivion until V. Noorden published his paper on oatmeal cures, in which he described a number of well observed cases, favorably influenced by an exclusive carbohydrate diet. At first this communication was received with a great deal of scepticism, overcome, however, in the following years by the weight of concurring evidence.

The treatment followed by V. Noorden required a preparatory series of two or three vegetable days to reduce the glycosuria and increase the ability of the diabetic to take care of ingested carbohydrates. This was followed up by two or three days, during which 200 grammes of oatmeal were given cooked with 200 grammes of butter with the occasional addition of a vegetable proteid or eggs. The oatmeal days were followed again by one or two vegetable days after which the classical strict diet was resumed.

The points upon which the success of the carbohydrate diet depended, were formulated in the following way:

The oatmeal diet should never be given without the preceding vegetable days, as the diabetic organism has first to get rid of the accumulated surplus of carbohydrates. Nor should the return to the strict diet be made without the interpolation of a similar period. Particular stress was laid on the exclusion of all other carbohydrates during the oatmeal cure. Failure to observe this point very often produces a decrease of the tolerance and an increase of the ketonuria.

Animal proteid should be strictly excluded during the cure, as it annihilates the favorable action of an exclusive carbohydrate diet.

The result of the treatment will be more favorable the less proteid is given during the whole

duration of the dietary change, so that in late years the results have become more uniform through the exclusion of all proteid addition.

The oatmeal period should never be continued longer than three or four days, as the favorable influence is superseded by a decrease in tolerance.

The advantages which V. Noorden claims for his oatmeal treatments may be classed under the following headings:

First: The action of oatmeal is specific and is either due to a different constitution and different resorption of the oatmeal starch, or to some ferments contained in the oatmeal which render utilization of oatmeal starch possible for the diabetic.

Second: The cure can only be applied in cases of severe diabetics, as light cases do not react to the oatmeal treatment. Amongst severe cases we find a number in which no favorable result can be observed after such treatment.

In a great majority of cases an increase of tolerance to carbohydrates is obtained. The favorable result is maintained during the following days of strict diet, so that the patient who could not be made sugar free on a strict diet, can be kept on the same diet without excreting any sugar.

As a result of the increase of tolerance the ketonuria very often disappears or is diminished to such a degree that an imminent coma may be averted.

It will be my endeavor to discuss the different claims of V. Noorden by analyzing the results in a great number of well-observed cases of diabetes.

First specificity of the oatmeal.

The specific action of oatmeal was at first accepted and all the following investigations were carried out with it, notwithstanding the results recorded by the old writers by means of different carbohydrates.

A great deal of work was done to find out whether the starch of the oatmeal could be utilized on account of a different chemical constitution, or whether some ferment-like substance influenced the utilization of the carbohydrates. Klotz, Lang and Magnus-Levy were able to show that bacterial decomposition of oatmeal starch as well as its resorption differed quite a good deal from other starches.

All these investigations, however, were made useless by the discovery that a number of different carbohydrates, if fed under the same precautions as oatmeal, led to an increase in tolerance.

Schmidt and his pupils, especially L. Blum demonstrated that very similar results could be obtained with other carbohydrates, provided the cure was carried out according to the original method of V. Noorden.

A number of cases treated at different periods with oatmeal, and afterwards with corresponding amounts of flour allow a comparison.

S.—31 years of age; male. A severe case of diabetes. Entered treatment 1910. The first oatmeal cure was undertaken in January, 1911.

Date, January 17; Total Amount, 2200; Specific Gravity, 1.031; Reaction, Alkal. Intake—N., 8.34; Fat, 252;

C. H., 34; Cal., 511. Output—Sugar, per cent., 2.2; Acetone, +; Diacetic Acid, ++; Ammonia, 0.2. Diet and Remarks—Proteid Fat.

Date, January 18; Total Amount, 1700; Specific Gravity, 1026; Reaction, Alkal. Intake—N., 11.02; Fat, 301; C. H., 170; Cal., 3783. Output—Sugar, Negative; Acetone, —; Diacetic Acid, ++; Ammonia, 1.3. Diet and Remarks—Oatmeal and Eggs.

Date, January 19; Total Amount, 1900; Reaction, Alkal. Intake—N., 11.2; Fat, 301; C. H., 170; Cal., 3783. Output—Sugar, Negative; Acetone, +; Diacetic Acid, ++; Ammonia, 0.1. Diet and Remarks—Oatmeal and Eggs.

Date, January 20; Total Amount, 2300; Specific Gravity, 1020; Reaction, Acid. Intake—N., 11.2; Fat, 285; C. H., 170; Cal., 3555. Output—Sugar, Negative; Acetone, ++; Diacetic Acid, ++; Ammonia, 0.3. Diet and Remarks—Oatmeal and Eggs.

Date, January 21; Total Amount, 2300; Specific Gravity, 1019; Reaction, Alkal. Intake—N., 11.2; Fat, 287; C. H., 170; Cal., 3571. Output—Sugar, per cent., 4.3; Acetone, +; Diacetic Acid, ++; Ammonia, 0.2. Diet and Remarks—Oatmeal and Eggs.

Date, January 22; Total Amount, 2450; Specific Gravity, 1020; Reaction, Acid. Intake—N., 4.79; Fat, 102; C. H., 67; Cal., 1390. Output—Sugar, Negative; Acetone, +; Diacetic Acid, ++; Ammonia, 0.2. Diet and Remarks—Vegetables and Eggs.

Date, January 23; Total Amount, 2050; Specific Gravity, 1020; Reaction, Alkal. Intake—N., 4.23; Fat, 118; C. H., 44; Cal., 1415. Output—Sugar, negative; Acetone, ++; Diacetic Acid, ++; Ammonia, 0.17. Diet and Remarks—Vegetables and Eggs.

During the oatmeal period the glycosuria disappeared immediately on the first day, to return on the third and to increase on the fourth day, showing the disadvantage of a long-continued carbohydrate diet. Notwithstanding this mistake the patient on return to the strict proteid fat diet remained sugar-free.

The patient returned in 1913, in a very much emaciated condition and with a very lowered tolerance. On entering the hospital he showed some premonitory symptoms of coma. He was put on a vegetable diet followed by flour diet.

Date, January 8, 1913; Total Amount, 3100; Specific Gravity, 1029; Reaction, Acid. Intake—N., 3.1; Fat, 168; C. H., 111; Cal., 2167; Cal. Net, 2043. Output—Sugar, Per Cent., 1.0, Total, 31; Acetone, ++; Diacetic Acid, —; Ammonia, 4.3. Weight—Gain, 24. Diet and Remarks—Vegetables.

Date, January 9, 1913; Total Amount, 3000; Specific Gravity, 1031; Reaction, Acid. Intake—N., 3.0; Fat, 222; C. H., 187; Cal., 2833; Cal. Net, 2499. Output—Sugar, Per Cent., 2.7, Total, 81; Diacetic Acid, +++; Ammonia, 3.6. Weight Gain, 13½. Diet and Remarks—Flour and Whisky.

Date, January 10, 1913; Total Amount, 2650; Specific Gravity, 1032; Reaction Slight Acid. Intake—N., 3.0; Fat, 222; C. H., 187; Cal., 2823; Cal. Net, 2495. Output—Sugar, Per Cent., 3.1, Total, 75; Acetone, +; Diacetic Acid, —; Ammonia, 1.3. Weight—Gain, 3½. Diet and Remarks—Flour and Whisky.

Date, January 11, 1913; Total Amount, 2200; Specific Gravity, 1031; Reaction, Neutral. Intake—N., 3.0; Fat, 222; C. H., 187; Cal., 2823; Cal. Net, 2543. Output—Sugar, Per Cent., 3.2, Total, 68; Acetone, ++; Diacetic Acid, +++; Ammonia, 1.7. Weight—Gain, 3. Diet and Remarks—Flour and Whisky.

Date, January 12, 1913; Total Amount, 2350; Specific Gravity, 1028; Reaction, Acid. Intake—N., 4.0; Fat, 227; C. H., 110; Cal., 2861; Cal. Net, 2779. Output—Sugar, Per Cent., 0.8, Total, 19; Acetone, +; Diacetic Acid, +++; Ammonia, 1.7. Weight—Gain, 3½. Diet and Remarks—Vegetables.

During the flour period the result was not nearly as good as under the oatmeal. The glycosuria failed to disappear, and the acidosis still showed itself in a very strong ferrichlorid reaction. Still the beneficial effects are apparent enough; he utilized over 100 grams of carbohydrates and the ammonia output, the most accurate index of acidosis, fell from 4.3 to 1.7 grs. in 24 hours. I would like to attract your attention to the phenomenal gain during the flour diet, largely due to the retention of water.

A better result was obtained in the case of Mr. McK., 28 years of age. Intermediary case.

Date, January 2; Total Amount, 4000; Specific Gravity, 1038; Reaction, Acid. Intake—N., 22.4; Fat, 140; C. H., 224; Cal., 2786; Cal. Net, 1634. Output—Sugar, Per Cent., 7.2, Total, 228; Acetone, —; Diacetic Acid, —; Diet and Remarks—Proteid Fat.

Date, January 3; Total Amount, 1500; Specific Gravity, 1027; Reaction, Acid. Intake—N., 7.8; Fat, 70; C. H., 64; Cal., 1530; Cal. Net, 1416. Output—Sugar, Per Cent., 1.9, Total, 28.5; Acetone, —; Diacetic Acid, —. Diet and Remarks—Vegetables.

Date, January 4; Total Amount, 2700; Specific Gravity, 1018; Reaction, Acid. Intake—N., 3; Fat, 212; C. H.,

147; Cal., 2663; Cal. Net, 2519. Output—Sugar, Per Cent., 2.2, Total, 59.4; Diacetic Acid, —. Diet and Remarks—Flour.

Date, January 5; Total Amount, 1800; Specific Gravity, 1019; Reaction, Acid. Intake—N., 3; Fat, 222; C. H., 147; Cal., 2663; Cal. Net., 2519. Output—Sugar, Per Cent., 2, Total, 36; Acetone, —; Diacetic Acid, —. Diet and Remarks—Flour.

Date, January 6; Total Amount, 1200; Specific Gravity, 1018; Reaction, Acid. Intake—N., 4.4; Fat, 130; C. H., 89; Cal., 1613. Output—Sugar, Per Cent., 0.1, Total, 1.2; Acetone, Trace; Diacetic Acid, —. Diet and Remarks—Vegetables.

The sugar excretion fell under the influence of the exclusive flour diet to traces, which finally disappeared under the influence of a strict proteid-fat diet.

These observations prove fully that flour works very similarly to the oatmeal; its anti-ketonic action, however, does not seem to equal the influence of oatmeal. In a series of observations I have failed to obtain a disappearance of sugar; for these reasons I have given up the exclusive flour diet and returned to the oatmeal cure as the most efficacious form of the carbohydrate treatment.

Secondly: V. Noorden stated that the oatmeal cure could only be applied in severe cases, while light cases failed to respond to it.

It can be easily shown that this view cannot be substantiated. Amongst a great number of light cases treated by either the oatmeal or flour diet with equally satisfactory results, I shall cite the following:

Mrs. S., 62 years of age. Light case.

Date, February 25; Total Amount, 1400; Specific Gravity, 1030; Reaction, Acid. Intake—N., 2.3; Fat, 168; C. H., 43; Cal., 1965; Cal. Net, 1837. Output—Sugar, Per Cent., 2.3, Total 32; Acetone, —; Diacetic Acid, —. Diet and Remarks—Vegetables.

Date, February 26; Total Amount, 1450; Specific Gravity, 1021; Reaction, Acid. Intake—N., 3.8; Fat, 193; C. H., 76; Cal., 2273. Output—N., 7.3; Sugar, Large Trace; Acetone, —; Diacetic Acid, —; Ammonia, 0.7. Weight—Gain, 3½. Diet and Remarks—Vegetables.

Date, February 27; Total Amount, 1250; Specific Gravity, 1021; Reaction, Acid. Intake—N., 4.7; Fat, 183; C. H., 164; Cal., 2657; Cal. Net, 2578. Output—N., 5; Sugar, Per Cent., 1.5, Total, 19.8; Acetone, —; Diacetic Acid, —; Ammonia, 0.6. Weight—Loss, 1. Diet and Remarks—Flour.

Date, February 28; Total Amount, 1100; Specific Gravity, 1026; Reaction, Acid. Intake—N., 4.7; Fat, 183; C. H., 164; Cal., 2666; Cal. Net, 2568. Output—N., 5.3; Sugar, Per Cent., 2.3, Total, 25; Acetone, —; Diacetic Acid, —; Ammonia, 0.7. Weight—Loss, 1½. Diet and Remarks—Flour.

Date, March 1; Total Amount, 1200; Specific Gravity, 1024; Reaction, Acid. Intake—N., 3.4; Fat, 214; C. H., 53; Cal., 2163. Output—N., 5.6; Sugar, Trace; Acetone, +; Diacetic Acid, —; Ammonia, 0.7. Weight—Gain, 2. Diet and Remarks—Vegetables.

Date, March 2; Total Amount, 1350; Specific Gravity, 1017; Reaction, Acid. Intake—N., 14.2; Fat, 150; C. H., 47; Cal., 2649. Output—N., 7.4; Sugar, Trace; Acetone, +; Diacetic Acid, —; Ammonia, 0.8. Weight—Loss, 1. Diet and Remarks—Proteid, Fat.

Date, March 3; Total Amount, 1300; Specific Gravity, 1023; Reaction, Acid. Intake—N., 11.7; Fat, 216; C. H., 27; Cal., 2596. Output—N., 9.9; Sugar, Negative; Acetone, +; Diacetic Acid, —; Ammonia, 0.7. Diet and Remarks, Proteid, Fat.

In a number of cases this short cut may be used to render the patient sugar-free and the method may prove useful in the hands of the practitioner, who has no hospital facilities. As a general rule the old method of treatment by the carbohydrate free diet must be considered superior on account of its educational value.

After all the carbohydrate cure can be followed out only for a few days, while the proteid fat diet represents the standard the diabetic has to follow for the rest of his existence.

Thirdly: The increase of tolerance claimed by V. Noorden can be observed in a great many cases. A typical action was obtained in the following case:

S., 44 years of age. Severe case.

Date, October 11; Total Amount, 2600; Specific Gravity, 1027; Reaction, Acid. Intake—N., 23.2; C. H., 78.7; Cal., 4344; Cal. Net, 4288. Output—Sugar, Per Cent., 1.5. Total, 39; Acetone, +; Diacetic Acid, ++; Ammonia, 2.7. Diet and Remarks—Proteid, Fat.

Date, October 12; Total Amount, 1920; Specific Gravity, 1029; Reaction, Acid. Intake—N., 22.9; C. H., 82; Cal., 3586; Cal. Net, 3534. Output—Sugar, 0.7, Total, 13.4; Acetone, Trace; Diacetic Acid, ++; Ammonia, 1.8. Diet and Remarks—Proteid, Fat.

Date, October 13; Total Amount, 1290; Specific Gravity, 1028; Reaction, Acid. Intake—N., 11.2; C. H., 170.5; Cal., 3783. Output—Sugar, Trace; Acetone, Trace; Diacetic Acid, ++; Ammonia, 1.5. Diet and Remarks—Oatmeal.

Date, October 14; Total Amount, 980; Specific Gravity, 1029; Reaction, Acid. Intake—N., 10.6; C. H., 163.8; Cal., 1308; Cal. Net, 1212. Output—Sugar, Per Cent., 2.5. Total, 45; Acetone, Trace; Diacetic Acid, +++; Ammonia, 1.3. Diet and Remarks—Oatmeal.

Date, October 15; Total Amount, 1440; Specific Gravity, 1030; Reaction, Acid. Intake—N., 11.2; C. H., 170.5; Cal., 3785; Cal. Net, 3653. Output—Sugar, Per Cent., 2.3. Total, 33; Acetone, —; Diacetic Acid, ++++. Diet and Remarks—Oatmeal.

Date, October 16; Total Amount, 2220; Specific Gravity, 1022; Reaction, Alkal. Intake—N., 23.1; C. H., 90.1; Cal., 3460. Output—Sugar, .02, Total, 4.4; Acetone, ++++; Diacetic Acid, ++; Ammonia, 1.1. Diet and Remarks—Proteid, Fat.

Date, October 17; Total Amount, 1920; Specific Gravity, 1016; Reaction, Alkal. Intake—N., 22; C. H., 45.1; Cal., 3622. Output—Sugar, —; Acetone, —; Diacetic Acid, ++; Ammonia, 0.8. Diet and Remarks—Proteid, Fat.

Date, October 18; Total Amount, 2190; Specific Gravity, 1020; Reaction, Neutral. Intake—N., 13.8; C. H., 77.6; Cal., 2945. Output—Sugar, Trace; Acetone, Trace; Diacetic Acid, ++; Ammonia, 0.7. Diet and Remarks—Vegetables.

The patient who could not be made sugar-free on strict diet, failed to show any trace after a period of three oatmeal days.

The failure of the carbohydrate cure has become less and less frequent, since we have come to realize the importance of the restriction in proteid.

Formerly we used to give a vegetable proteid or eggs with the oatmeal diet, but results have been very much more uniform since the proteid contents of the food have been cut down.

Fourthly: The influence of the ketonuria is apparent in practically every case. Even in cases where no other favorable result can be obtained, the restriction in the acid excretion is very marked.

All the cases in which I have applied the carbohydrate cure, the influence of the acidosis has been most beneficial. I have seen a number of cases on the verge of diabetic coma in which the fatal issue has been delayed.

Not all the cases of acidosis call for the application of the carbohydrate cure. A few remarks about the physiology of ketonuria will help us to establish the correct indications.

The acetone bodies are normal intermediary products in the decomposition of fatty acid. Under normal conditions they are burned up, whenever carbohydrates are oxidized; as Rosenbach expresses it, they are burned up in the fire of the carbohydrates. Whenever carbohydrates are excluded from the diet acetone bodies begin to appear in the urine; and acidosis sets in. After a few days of the carbohydrate free diet, the acetone bodies begin to diminish and finally disappear. Evidently another substance, probably the proteid sugar, has taken the place of the ingested carbohydrates.

The acetonuria in diabetes therefore may be caused by two conditions. In the severe cases the diabetic has lost the ability to use sugar given under ordinary conditions, and his ketonuria is

due to the complete absence of carbohydrates in the metabolic processes. In the light cases a certain percentage of the sugar is oxidized and therefore burns up the acetone bodies; if such a case is put on a carbohydrate free diet a physiological ketonuria follows.

Acetone, ferrichloride reaction and high ammonia output do not necessarily call for a carbohydrate cure; in each case the reason for the ketonuria has to be analyzed and the treatment shaped accordingly.

In cases where the ketonuria is due to the sudden change to the carbohydrate free diet, the increase in tolerance obtained soon allows the proteid sugar to take care of the acidosis. After a few days of strict diet the signs of acidosis disappear.

If the acidosis is due to the intensity of the diabetic disturbance, and whenever the conditions are given for the development of a diabetic coma, the institution of a carbohydrate cure becomes imperative. A strict proteid fat diet in such a case would easily lead to a coma; under the oatmeal diet a certain percentage of the starch is utilized and restricts the amount of acetone bodies entering circulation.

The carbohydrate cure should be followed as long as an increase in tolerance can be demonstrated. Very frequently, however, the sugar excretion begins to go up on the third or fourth day and with it the acidosis increases.

In such cases a return to the strict proteid fat diet is indicated; if a decided gain in tolerance can be obtained the acidosis soon diminishes and may finally disappear altogether.

A lasting improvement of the acidosis can only be expected from a strict proteid fat diet; a carbohydrate cure which necessarily fails after a few days, can only be considered as a momentary relief, in the most favorable case as a method leading to a better tolerance of the carbohydrate free diet. Our endeavor must be to always return to the strict proteid fat diet as soon as possible; the favorable result in cases with intense acidosis obtained by such treatment may be seen from the following table:

Date, October 11; Total Amount, 2600; Specific Gravity, 1027; Reaction, Acid. Intake—N., 23.2; C. H., 78.7; Cal., 4344; Cal. Net, 4288. Output—Sugar, Per Cent., 1.5. Total, 39; Acetone, +; Diacetic Acid, ++; Ammonia, 2.7. Diet and Remarks—Proteid and Fat.

Date, October 15; Total Amount, 1440; Specific Gravity, 1030; Reaction, Acid. Intake—N., 11.2; C. H., 170.5; Cal., 3785; Cal. Net, 3653. Output—Sugar, 2.3. Total, 33.1; Acetone, —; Diacetic Acid, ++. Diet and Remarks—Oatmeal.

Date, October 16; Total Amount, 2220; Specific Gravity, 1022; Reaction, Alkal. Intake—N., 23.1; C. H., 90.1; Cal., 3460. Output—Sugar, Per Cent., 0.2, Total, 4.4; Acetone, ++++; Diacetic Acid, ++; Ammonia, 1.1. Diet and Remarks—Proteid and Fat.

Date, October 24; Total Amount, 2100; Specific Gravity, 1023; Reaction, Alkal. Intake—N., 11; C. H., 110; Cal., 2644. Output—Sugar, Trace; Acetone, —; Diacetic Acid, ++; Ammonia, .95. Diet and Remarks—Proteid and Fat.

Date, December 18; Total Amount, 2160; Specific Gravity, 1025; Reaction, Alkal. Intake—N., 16; C. H., 108; Cal., 3173. Output—Sugar, Very slight trace; Acetone, —; Diacetic Acid, —. Diet and Remarks—Proteid and Fat.

The limitations of the carbohydrate cure are drawn by its ability to increase tolerance. It should never be prolonged as soon as the glucose excretion increases.

In a great majority of cases this point is reached

within 3 or 4 days; other cases already described by Naunyn, as diabetes with paradoxical tolerance seem to stand it for a long time. In one case, where I combined the oatmeal with a vegetable diet, the tolerance kept increasing during a period of 3 weeks.

The reluctance with which the carbohydrate treatment was received by the medical profession was principally due to our inability to bring its results in accordance with our theoretical conception of diabetes.

Two theories have been advanced to explain the origin of diabetes. V. Noorden and his school have tried to find its origin in an increased production of sugar exceeding its assimilation and transformation into glycogen. On the other hand Naunyn and his pupils in accordance with the great majority of writers on the subject agreed that the glycosuria was due to the inability of the body tissues to oxidize sugar.

The crucial experiment which to my mind decides the question in favor of Naunyn's view was done by Starling. He transfused a normal heart and the heart of a dog, rendered diabetic by extirpation of the pancreas, with a solution containing glucose. While the normal heart performed its work at the expense of the glucose the diabetic heart failed to oxidize the sugar, showing that the diabetic tissues were unable to take care of the glucose.

During the oatmeal diet large amounts of carbohydrates are poured into the circulation and under their influence the body suddenly seems to regain its power to oxidize glucose.

Numerous attempts to explain this fact from the standpoint of the old established theory have failed. It was assumed that oatmeal starch was split up in the intestines beyond the glucose molecule, and that the products of fermentation so formed were accessible to the diabetic metabolism and still able to exert the influence of the intact molecule on the acetone bodies. All these attempts have failed and it was definitely established that the action of the oatmeal was not specific, and that the effect depended entirely on the form in which the starch was given.

The diabetic organism therefore is able to take care of carbohydrates provided proteid consumption is kept down to the lowest possible level. In accordance with that we find that the carbohydrates cures are only successful as long as nitrogen excretion can be kept down to a low level of about 5 grammes per day. As soon as the nitrogen excretion increases the glycosuria goes up.

A number of facts are in accordance with the view that under certain conditions the diabetic organism can take care of sugar. Diabetic frogs survive the extirpation of the liver for a number of days, and during that time they fail to excrete any glucose in the urine. Geese after extirpation of the pancreas develop diabetes which, while typical in all its manifestations, shows an increase of glucose in the blood while the urine does not contain any sugar.

It seems to be established that under normal

conditions an intimate relation exists between oxidation of proteids and carbohydrates. It is probably a disturbance in this relation which will be made to account for the inability of the diabetic to oxidize glucose.

To discuss this any further would lead us into the domain of theoretical speculation. What I wanted to do to-day was to bring a number of facts before you to demonstrate what a valuable asset we possess in the carbohydrate cure, and to show in which cases and under what conditions it could be used to advantage.

THE EFFECT OF A MOMENTARY CONTACT WITH AN 18,000 VOLT CURRENT.

By PHILIP KING BROWN, M. D., San Francisco.

C. S. Y. Age 30. F. H. negative. Freight conductor on S. P. R. R. Past history and discussion of similar accidents, negative. Always strong. Tub. glands in l. neck removed 12 years ago but never inconvenienced him.

Present trouble. On Jan. 7th at 2 p. m. he was standing on iron ratchet platform at one end of freight car 2 feet below top of car. The train was moving about six miles an hour, and the patient was holding on to the brake-wheel, his hands covered with extra heavy Napatan leather mitts without rivets. The patient knows nothing of what happened and recalls now nothing of pain or sensation of any kind except a momentary hissing, sputtering noise. Later he learned that he was struck in passing by a live electric wire carrying 18,000 volts. The contact was necessarily instantaneous. The wire was not broken, but patient says he understands it was temporarily suspended where it was. He evidently fell to the ground but was unconscious of anything, and does not remember losing consciousness or the fall in any way, although he fell nearly 30 feet. Four hours later he began to be conscious of surroundings, and remembers the pain of a needle used to suture the left ear which was badly torn in the fall.

The patient must have fallen free of the moving train, but no one saw him fall and he does not know where he struck. The only evidences of bruises were the torn ear, soreness of left shoulder, skin off right elbow and two knuckles of left hand and over left ulnar prominence. Besides this there were circular burns an inch in diameter at the hair line on left frontal region, on the plantar surface of left big toe, a smaller burn on the under surface of the adjoining toe at the tip and still others at the base of the little toe of same foot on the outer side and on the plantar surface of the foot two inches from burn on little toe. The woolen cap, shoe and woolen sock were similarly burned. The use of the left arm and leg was impaired but patient thought it due to fall and did not mention it for two days. The arm and leg felt sore and heavy and he had to be assisted in getting his clothes on. The hand was all right but shoulder could not be lifted or hand flexed and extended. The leg was less affected and when he walked slowly it seemed all right. In hurrying or climbing stairs it feels heavy and is moved slowly.

Improvement in use of left arm and leg has been very slight so that present condition May 1st

is little better than when first injured. Can extend and flex left wrist a little, uses the pectorals slightly better. Cannot rise shoulder at all or move it backwards; no use whatever of biceps, triceps or supinator longus. Can almost open the hand and nearly close it, extend the thumb but not flex it.

Leg. The peroneal group weak. Quadriceps slightly weak. Patient describes the leg as strong but slow. No atrophy. No analgesia or anesthesia. Reflexes equal on both sides, fairly lively. No involvement of cranial nerves. Wound in head began to heal well a week ago. All the burns are deep and sharply defined.

CONTACT WITH STILL HIGHER TENSION CURRENT.

(Notes of two accidents with similar results given me by manager of a power transmission line.)

Our transmission system amounting to over 300 miles of line carries a pressure of 50,000 volts between lines and about 29,000 volts between any one line and ground. It is an alternating current of 60 cycles. A party of three men, one a man about 50 and his son about 18 years old, and an engineer were surveying a parcel of ground which extended under our power line. They were using a metal tape which is commonly known as a surveyor's chain 650 ft. long. The elderly man held one end and the son and engineer the other. The elderly man carried the zero end of the chain ahead of the party to the next stake in the line of their measurement. This course led him under the power line at nearly right angles to it, and beyond a considerable distance. The character of the ground was such that when he reached the stake from which the measurement was to be taken, he had passed out of sight of the power line and in his interest in the work in hand I think it is doubtful if he had in mind the existence of the power line in that particular neighborhood. When he arrived at the stake the engineer and the boy pulled the tape back in their endeavor to pull it taut and to make the proper measurements. The steel tape must have caught on a piece of sage brush and when they gave it a jerk to free it, the tape flipped up and came in momentary contact with one of the wires of our power line. All three parties at that time had hold of the tape and instantly came in circuit between the line and the ground and were subjected to the voltage between the line and the ground. This particular line was protected by an automatic circuit breaker at its junction with the main line. This circuit breaker tripped out when the accident happened, hence there was only a fraction of a second after the tape came in contact with the line that the line was alive.

However, before the line tripped out, sufficient time elapsed to give all three of the men quite severe burns. The engineer and the boy were unconscious for about 10 minutes as far as they could judge, but upon regaining consciousness were able to pick themselves up and go to the assistance of the old man. Fortunately for these men the ground in this vicinity was very dry and formed a very poor grounding. Their recollections of being in the circuit were not clear, and it is doubtful if they had any realization of what hit them. The condition of the older man was much more serious than that of the two younger men, but he states that he did not lose consciousness and that his impression was that he was in the midst of a ball of fire and that fire was all about him and that he heard a great roar. The current passed through or over his body causing him to fall sidewise and it was found he had a severe burn on his side just above the hip. The shock

paralyzed his arms and lower limbs for 2 or 3 weeks. The accident occurred in the latter part of August and the sun was shining very hotly at the time, and he suffered greatly, not from the pain caused by the burns but from the intense heat of the sun. He did not lose consciousness while he lay on the ground and was able by moving his shoulders and head to twist himself around in such a position that his head was brought in the shade of a bunch of sagebrush which gave him some protection from the sun.

The engineer did not realize that he was burned and walked around for three or four days before he was forced to take to his bed on account of the burns on his feet. At that time he discovered he had a severe burn on the bottom of each of his heels about the size of a dollar which forced him to stay at home for nearly two weeks. The boy was also burned on his **hands and feet** and it must have been a month before he was able to be around. The older man was burned very severely on both his hands and feet, besides a nasty burn on his side. For a week or two he was unable to keep anything on his stomach. I do not know whether this was due to the burn on his side or his general condition. Neither he nor his son came to town to receive the assistance of a physician in spite of the fact that they had been told to do so, but remained at home and received such care and attention as the wife and mother was able to give them with the simple remedies which she had. Later, the engineer, whose brother was a doctor in Tonopah, sent them some medicine. The boy and the engineer have apparently entirely recovered from their burns, but the older man is crippled in the hands from contraction of the tendons, and it is my opinion that he will always be so. I am not sure whether or not the burns are entirely healed, but it is my impression that they are not, particularly on the feet.

Evidently at the time of the accident there was some perspiration on the hands and wrists of the older man as his wrists looked as though they had been subjected to a hot flame. Evidently there must have been an arc which was more intense where there was moisture on the skin. It is my opinion that these people were not very severely shocked but that the high voltage caused the current to pass over their bodies to ground instead of through their tissues and nervous system. This, I believe, is the general theory regarding high voltage; that is, it burns instead of producing a shock.

Another experience that came to my attention during the past winter was at a pumping station here in Goldfield where one of the Water Company's men, while working at the well, carelessly brought an iron pipe in contact with the 6600-volt circuit. Unlike the high tension power line this circuit is not supposed to be grounded, yet when this man brought the pipe which he was carrying in contact with one of the 6600-volt lines he was instantly killed. There was scarcely a mark to be found on his body in the shape of a burn. My idea of this casualty was that the man was shocked to death. In all probability the heart was paralyzed, so that lower voltages ranging up from 1100 up to 6600 volts apparently affect the nervous system in such a manner that death usually follows, but with the higher voltages those coming in contact with the line are severely burned but not so severely shocked.

The other day at our substation one of our attendants carelessly raised up while he was working and came in contact with the 6600-volt circuit on the fleshy part of his hip. He did not lose consciousness or even lose his head but realized what he had done. The shock caused the muscles of his legs to contract suddenly which brought him down on his haunches and thus broke the arc; not, however, until a blister had been made on the skin

of his hip and on the sole of his foot the size of a twenty-five cent piece. I took the man to the doctor where his burns were dressed and in a day or two he had entirely recovered and felt no serious effects whatever.

sinusitis treated by Krause operation and alcohol injections.

A lively discussion of these cases followed in which Drs. Graham, Wintermute, McNaught, Horn, Nagel, Welty, Lucchetti and Fredericks participated.

It was voted to continue these clinical meetings in the future.

SOCIETY REPORT

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of May the following meetings were held:

Section on Medicine, Tuesday, May 6, 1913.

1. Review of Blood Findings which may assist in the Diagnosis of Carcinoma. Donald Currie. Discussed by H. D'A. Power and J. Rosenstirn.

2. Report of Case of Bilateral Hematuria Treated by Subcutaneous Injection of Blood. L. W. Allen. Discussed by M. Krotoszyner, R. L. Rigdon, M. Silverberg, J. Rosenstirn, W. B. Stevens, J. J. Hogan and Cullen Welty.

3. Report of Case of Hemorrhage in New Born Treated by Subcutaneous Injection of Blood. T. D. Maher. Discussed by H. R. Oliver and H. J. Kreutzmann.

General Meeting, Tuesday, May 13, 1913.

1. Demonstration of Moving Pictures. Dudley Tait. (a) Technic of Vessel Anastomosis; (b) Transfusion; (c) Visceral Organisms.

2. Colds in their Relation to the Physics of the Atmosphere. C. M. Richter. Discussed by A. McAdie, K. Pischel and J. J. Kingwell.

Section on Surgery, Tuesday, May 20, 1913.

1. Presentation of Case of Raynaud's Disease. C. G. Levison.

2. Diagnosis and Treatment of Urethral Calculus, with Report of Unusual Case. W. E. Stevens. Discussed by A. B. Grosse, and M. Krotoszyner.

3. Theory and Practice of Artificial Transfusion. J. J. Hogan. Report of two cases. B. F. Alden. Discussed by J. Eaves, J. Rosenstirn, S. T. Pope, S. C. Keck and M. Krotoszyner.

4. X-Ray Demonstration. L. P. Howe. Section on Eye, Ear, Nose and Throat.

Tuesday, May 27, 1913.

This meeting, which was called to order at 4:30 p. m., Dr. Horn presiding, was a clinical one, as proposed at the previous meeting of this section, and was an innovation which proved to be very successful. The program follows:

Dr. Horn presented:

(a) Fibro-sarcoma of the nasal pharynx in an adult.

(b) A case of anthrax and lues of the nose.

(c) A case of ulcer of the posterior pillar of the palate.

Dr. C. S. G. Nagel:

(a) A case of essential shrinkage of the conjunctiva.

(b) A young girl with acquired conical corneae.

Dr. McNaught:

(a) Adult with a pan-sinusitis treated with alcohol injections and healed radical mastoid in six weeks.

Dr. V. F. Lucchetti:

(a) Case of pseudo glioma of the left eye in a child of three years.

(b) Adult with traumatic rupture of the sclera following a blow with a brass knuckle.

(c) Case of fibro-lymph adenoma of the nasal pharynx.

Dr. G. P. Wintermute presented a case of pan-

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held at the office of Dr. G. W. Walker on Friday evening, May 30. The following members were present: Drs. H. E. Sanderson, D. R. Powell, Mary Taylor, Minerva Goodman, Fred P. Clark, Barton J. Powell, C. F. English, J. D. Dameron, L. Dozier, G. W. Walker, Margaret H. Smyth and B. F. Walker, with Dr. J. W. Hammond of Byron as guest.

Dr. Barton J. Powell, chairman of the Committee on Medical Legislation, read the resolutions which the committee had drafted concerning same.

The business of the meeting having been concluded, the society listened to a paper on "Deformities of Septum and Face from Hypertrophies of the Lymphoid Ring" by Dr. G. W. Walker. It proved to be a very interesting and instructive paper, and the discussion which followed, while participated in chiefly by the specialists, was interesting to all.

The other paper of the evening was read by Dr. Minerva Goodman and gave a synopsis of her work as medical inspector in the public schools during the past year. The report showed that a large percentage of school children were suffering from defects of hearing and vision, affections of the heart and lungs and nervous disorders. One hundred and two children were operated on for adenoids and tonsils at the free clinic. Only 31 per cent. of the school children were found to be vaccinated.

The excellent work of Dr. Goodman was highly recommended by the members present, and on a motion by Dr. Taylor seconded by Dr. Powell, a resolution was passed by the Society endorsing the work done by Dr. Goodman, as medical inspector, and recommending a continuance of the work of medical inspection in the schools; a copy of this endorsement to be sent to the Board of School Directors. There being no further business, the meeting adjourned.

A special meeting of the San Joaquin County Medical Society was held June 6th at the office of Dr. W. J. Young for the purpose of making arrangements for the funeral of our late member, Dr. Ira B. Ladd. The members present were: Drs. F. P. Clark, C. F. English, B. J. Powell, D. R. Powell, L. Dozier, D. F. Ray, W. W. Fitzgerald, W. J. Young and R. T. McGurk.

After hearing the history of the illness that led to Dr. Ladd's death from Dr. Fitzgerald, the matter of resolutions was taken up, and on the motion of Dr. B. J. Powell, that a committee of three pointed Drs. D. F. Ray, L. R. Johnson and R. T. McGurk. The secretary was instructed to send a copy of these resolutions to the family of Dr. Ladd and to put a copy in the minutes.

R. T. McGurk, Secretary.

SANTA BARBARA COUNTY MEDICAL SOCIETY.

The Santa Barbara County Medical Society met in regular session at the Arlington Hotel on Monday, May 19, 1913, and was called to order by the Vice-President, Dr. Samuel P. Low. Present—Drs. Anderson, Barry, Brown, Low, C. S. Stoddard, Wells; a total of six members; necessary for

a quorum 3 members. The minutes of the preceding meeting, April 14, were read and approved. The chair called for clinical cases, Dr. Barry reporting a cyst of the back (neoplasm) removed under a weak solution of cocaine comp. Some discussion followed over the uses of cocaine as a local anesthetic: dangers and care required. Dr. C. S. Stoddard reported a case of Ascites in a female, notable for the rapid refilling of abdominal cavity after tapping. The paper of the evening by Dr. George S. Wells entitled, "Gleanings from Eye, Ear, Nose and Throat Section" of recent State meeting at Oakland, was well received. The doctor dwelt upon some interesting cases of mastoid and radical mastoid operations, and skin grafting in connection therewith. Next followed some discussion on the use of serums and feeding the patient in typhoid. Adjourned.

The Santa Barbara County Medical Society met in regular session at the Arlington Hotel on Monday evening, June 9, 1913. In the absence of the President, Dr. T. A. Stoddard filling temporarily the post of ship surgeon in the Chinese-Japanese service; also the Vice-President, Dr. Samuel P. Low, Dr. C. S. Stoddard was elected to the chair and called the meeting to order. Present—Drs. Barry, Brown, C. S. Stoddard and Wells; a total of four members; necessary for a quorum three members. The minutes of the preceding meeting, May 19, were read and approved. Clinical cases: Dr. Wells reported an operation upon the septum of his own nose for deviation which consisted of a submucous resection. The surgery was done by a Los Angeles specialist and was remarkable for its entire painless character, using a few drops of 1% sol. cocaine. The Society discussed penetrating nail wounds of plantar surface of foot and the use of antitetanic serum in connection therewith. Dr. Barry reported a case in his own family in which 3000 units of serum were injected with seeming great benefit. The feature of the evening was the report of the recent State Convention in Oakland by the county delegate, Dr. Rexwald Brown. Dr. Brown also reported the founding of the College of Surgeons at Washington, D. C., of which he is a fellow. The meeting closed with an informal discussion of the annual State Medical Convention to be held in Santa Barbara next April.

WILLIAM T. BARRY, M. D., Secretary.

BOOK REVIEWS

"Golden Rules of Diagnosis and Treatment of Diseases." By Henry A. Cables; second edition. Published by C. V. Mosby Co., St. Louis, 1913.

Upon the appearance of the first edition of this book the present reviewer took occasion to protest against the type of pseudo text-book that it exemplified. The book is a collection of medical platitudes, tiresomely expressed, inadequate in scope and not even as useful as a quiz-compend, if a quiz-compend can be called useful. This second edition is no improvement on the first.

G. H. T.

The Operating Room and Patient, Third Edition Rewritten and Enlarged. By Russell S. Fowler, M. D., Chief Surgeon First Division, German Hospital, Brooklyn, New York. Third Edition Rewritten and Enlarged. Octavo volume of 611 pages with 212 illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$3.50 net.

This is a book that may be well recommended to every surgeon and medical man as well. The new edition has been rewritten and enlarged and the clear, definite style proves very satisfactory to the less experienced operator.

M. I. J.

"Clinical Laboratory Methods." By Roger Sylvester Morris, A. B., M. B. Published by D. Appleton & Co., New York and London, 1911.

The author's aim is to produce "a manual of technique and morphology designed for the use of students and practitioners of medicine," and "no attempt has been made to include within the present volume a multiplicity of methods." He justly contends that too much time is, as a rule, devoted to the interpretation of the results of an examination and the test put in such a way that it is out of reach of the busy practitioner and student. The author gives no interpretations and only the simple tests which is a blessing to one whose time is limited and anxious for results. The ground has been well covered, although several very good short tests have been omitted. The book is well written and will certainly be an aid in any laboratory.

R. B. T.

The Modern Hospital; Its Inspiration; Its Architecture; Its Equipment; Its Operation. By John A. Hornsby, M. D., Secretary Hospital Section, American Medical Association; Member American Hospital Association, etc., and Richard E. Schmidt, Architect, Fellow American Institute of Architects. Octavo volume of 644 pages with 207 illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$7.00 net; half morocco, \$8.50 net.

The dearth of literature on hospital architecture, equipment and operation makes all additions extremely welcome, especially the present one which covers the subject in a very comprehensive way; in fact more so than any other book that has been published to date. The frankness with which many of the problems that are worrying all hospital workers are discussed is very pleasing and will well repay careful reading. In the part devoted to the operation of hospitals the writer seems to frequently forget that conditions in all parts of the United States are not the same as in Chicago.

W. R. D.

Internal Medicine. By David Bovaird, Jr. Published by J. B. Lippincott Company, Philadelphia and London, 1912. Price, \$5.00.

"The purpose of the present work is to supply the framework of internal medicine." This sentence from the author's preface explains the aim sought and very satisfactorily attained. Even a volume of 618 pages will not hold more than the outline of the subject. Therefore, statements are made dogmatically, even on controversial subjects. The volume is frankly a text-book, and a considerable amount of dogmatism is demanded in a successful text-book.

On the whole, Dr. Bovaird's views seem sound and conservative and at the same time up-to-date. It is remarkable what an amount of knowledge is here compressed into a small volume. The book can be heartily recommended to others than students who for one reason or another prefer to have their knowledge presented in terse and attractive form, rather than in essays and controversial discussions.

J. L. W.

Muller's Serodiagnostic Methods. By Ross C. Whitman, B. A., M. D. J. B. Lippincott Company, publishers, Philadelphia and London, 1913.

Muller's "Serodiagnostic Methods" has already reached its third German edition and has been translated into English by Whitman. The rapidly broadening field of Serologic Study is responsible for repeated publications. While purposing to be purely a practical manual, it is in reality a Compendium of most of the Serologic tests and their modifications that have been suggested. The work embraces alike those tests that are established, experimental and valueless, without any regard to

discrimination. None of the recent tests, such as Abderhalden's Test for Pregnancy, Much-Holzmann's "Psycho-reaction" and the Cobra venom reactions, are neglected.

The work shows a lack of the author's personality, important minor details are often passed over and cautions and sources of error are generally omitted, and in this does not meet the requirements as a technical hand-book for novitiates in Serologic Study. The Serologist has generally familiarized himself with the original contributions and criticisms. The book stands as a good catalog in abstract of the methods embraced in its title.

E. A. V.

Diseases of the Ear. By Phillip D. Kerrison, M. D. Published by J. P. Lippincott. 1913. Price, \$5.00.

Recently so many text books on Otology have appeared in which the reviewer looks in vain for anything approaching originality, that the present volume comes as a distinct surprise. The book is filled from cover to cover with new ideas and plain common sense, and there is no repetition of vague views on the treatment of certain conditions, which progressive otologists now recognize as advancing, in spite of the pessimistic statements in some of our most modern text books.

To the American School of Otology belongs the credit for the renewal of interest in the treatment of chronic catarrhal deafness. On turning to the chapter on this subject, one is not disappointed in finding, not only a note of optimism running through the chapter, but also some sensible information as to the method of combating this insidious disease. Yankauer, Holmes and other Americans, have certainly thrown some new light on the subject of the influence of tubal catarrh in catarrhal deafness and the scattered results are splendidly epitomized here.

No work in English, up to the appearance of the present volume, gives us a properly digested resume of the immense German literature on the question of the pathology and treatment of labyrinthine conditions. Here we find not only the whole subject of physiology, but the far more difficult one of functional testing so clearly explained by series of original diagrams and figures that one can really gain a clear mental picture of this intricate subject.

H. H.

The Modern Treatment of Nervous and Mental Diseases. By White and Jelliffe. Volume 1. Published by Lea & Febiger, Philadelphia.

The nature of the subjects and the renown of the authors of the various chapters considered, makes the volume highly desirable to both the specialist and to the general practitioner.

Those interested especially in neurology should acquaint themselves with these monographs, not only because of the highly scientific methods of prophylaxis and the treatment of the various mental disorders set forth, but because of the extensive bibliography following the more important chapters.

The sections on eugenics and feeble mindedness are thorough and represent the last word on the subject. It is good to see the Binet Simon scale for intelligence given such a prominent place in the latter chapter.

The general arrangement of the various chapters could be greatly improved by grouping together the various types of psychoses instead of interposing sections on disturbances of glands of internal secretions, traumatic neuroses.

Dr Meyer's chapter on Paranoid States is most excellent. Cushing's work is largely drawn upon in the discussion of the disorders of the pituitary body and his illustrations used.

The work as a whole is noteworthy and contains a wealth of general information that makes reading it very interesting.

J. M. WOLFSOHN, M. D.

The Catarrhal and Suppurative Diseases of the Accessory Sinuses of the Nose. By Rose Hall Skillern, M. D., Professor of Laryngology, Medico-Chirurgical College; Laryngologist to the Rush Hospital, etc., J. B. Lippincott Co., Philadelphia and London. 1913. 247 illustrations, 5 plates, and one transparency. Price, \$5.00.

A very welcome and timely book, inasmuch as the sinuses are now claiming recognition of their importance in the etiology of many hitherto obscure troubles of the head. The author takes great pains to make clear the absolute and relative anatomy of this rather difficult region, and the illustrations used are both profuse in number, and very useful toward the understanding of the topography. It would be more convenient if the illustrations and text always kept step with each other, as it is annoying to be obliged to keep turning the pages backward and forward while reading the legend of an illustration. The different methods of operating are well described, and the author's choice is indicated. If your reviewer may be allowed a criticism, it is a condemnation of the liberal use of strong solutions of cocain, and the small use made of the much safer novocain. The references to the literature are given with admirable fulness, and that alone would make the book worth having. Old methods claim very little space, and the author, after impartially describing the best methods in use at present, gives a very frank criticism of the same, as well as of the many myths and false theories that have intruded themselves in this domain. The suction method, for instance, finds no favor with the author, in which he will, I think, be upheld by many rhinologists. The repetitions in the book are numerous, a failing shared by many other recent works on this subject; in the preface the author speaks of these repetitions, and says that it is done to impress the student, or to obviate the necessity of continually referring to other sections; to my mind there is a superabundance of these repetitions, and, especially when the repetition occurs shortly after the original, the tendency is more towards confusion than lucidity.

The book work is excellent in every way, and is another tribute to the excellence of the well-known publishing house.

M. W. F.

Review of "Epidemic Cerebrospinal Meningitis."

By Abraham Sophian, C. V. Mosby Co., 1913.

This little volume is a valuable and authoritative exposition of our present knowledge of epidemic meningitis. The writer has in a masterly way written a complete and practical treatise of the disease viewed from every aspect. The value of the book rests not so much upon his citation of authorities and statistics, although these are excellently well chosen, but particularly upon the fact that he has probably had the largest experience, according to Flexner, of any man with the serum treatment of meningitis. The style of the writer together with the newness of the subject of which he treats tend to sustain the interest of the reader in a way only too rare in books dealing with the science of medicine.

In a prefatory chapter upon etiology there is found an historical sketch tracing the history of the disease through four epidemiographical periods beginning with 1805 to about 1884. While this is as full as the purposes of the book warrant, one could wish that the chapter might be supplemented by a description of the horrors of the ravages of some of the epidemics as Defoe described the great plague of London. The subject of etiology is thoroughly considered, and he touches upon the

importance of the consideration of overcrowding and general hygiene in a very emphatic manner. The bacteriology of the meningococcus and its allied organisms is considered, and the interesting relation of the activities of the pseudomeningococcus, Neisser-gonococcus, micrococcus catarrhalis, micrococcus pharyngis siccus and the chromogenic Gram-negative cocci are fully dealt with, as well as experimental meningitis. He points out the comparative ease with which the examination of carriers may be carried out. Then follows a chapter upon symptomatology. He considers the disease primarily as a bacteremia with subsequent localization in the meninges, making clear in which stage subcutaneous use of the anti-toxin may be of service, and why after meningitis is established it should be given intra-durally. He points out the important significance of a dull tympanic note obtained on percussion of the skull at the frontoparietal region (Macewen's sign) in older children and adults, and refers to it later in the reports of his numerous cases. Among the later symptoms the importance of recognizing hydrocephalus is discussed and the importance of this rather frequent complication is made manifest. The chapter on laboratory diagnosis deals not only with the method of examining the spinal fluid, but also the blood, urine, herpes and other material. One of the impressive observations the author has to make is that by carefully observing the blood pressure during lumbar puncture and the administration of serum the accidents which sometimes occur during and after the operation may be practically entirely avoided. His statistics are so convincing upon this point as to make it appear that to omit blood pressure readings is to be careless of the interests of the patient.

In the final chapter upon treatment is reflected the vast experience of the writer, and in careful detail are found the modes of dealing, among other things, with the more common spinal types, and also that unfortunate complication, posterior basis meningitis in which the ventricles of the brain should be drained with the administration of the serum intra-cerebrally. The knowledge of this procedure should be possessed at all times in dealing with epidemic meningitis, as undoubtedly by the more or less simple technic described a certain proportion of cases otherwise fatal may be saved.

Of peculiar importance is the matter of quarantine. The recognition of carriers in convalescents and contacts by means of cultures of the throat render the problem of quarantine a comparatively easy one if attacked in a systematic manner. The forcible presentation of this is a fortunate feature of the book.

Upon the whole the writer is to be complimented upon having written probably the best work upon this subject that has appeared.

"Anesthetics and Their Administration." By Sir Frederick W. Hewitt, Fourth Edition. Published by Macmillan Co., Ltd., London, 1912. Price \$5.00 net.

In the introduction of the fourth edition of Hewitt's *Anesthetics* the author states that the revolutionary changes that have recently taken place in the practice of anesthesia has necessitated a re-writing of large sections and the addition of two new chapters—one on local and regional anesthesia and the other on the medico-legal aspects of surgical anesthesia.

The chapter on the physiology of anesthesia is practically exhaustive as regards the results of recent research, and those on the selection of the anesthetic and on the causation and treatment of accidents invaluable to surgeons and anesthetists. The section on nitrous oxide falls short of the general excellence of the rest of this work which for so long maintained its place as the standard authority on anesthetics. Dr. Hewitt has ap-

parently not been influenced by the success that American surgeons have had with nitrous oxide-oxygen anesthesia in major surgery, and this method, the most revolutionary change in the practice of anesthesia, is given small space and is commended only for minor surgery. Dr. Crile's work alone has proven this method to be one of the most remarkable advances in modern surgery and his results are being confirmed daily by surgeons all over the United States. None of the newer types of apparatus for the administration of nitrous oxide is described—possibly the lack of adequate appliances has had much to do with the failure of British surgeons to appreciate the value of this anesthetic. Notwithstanding this omission the work remains the best on the subject and indispensable to the student of anesthetics. M. E. B.

LANE LECTURES.

The fourteenth series of the Lane Medical Lectures will be given by Prof. Sir Edward Schäfer, Professor of Physiology, University of Edinburgh. These lectures will be upon "The Functions of the Ductless Glands Especially in Relation to other Secreting Organs." They will be delivered in the evenings at eight o'clock on September 3, 4, 5, 8 and 9, in the Lane Hall of the Stanford University Medical Department, Sacramento street near Webster, San Francisco, Cal.

PHYSICIANS' COLLECTION GUIDE.

This is a little book published by Mr. Lewis P. White, of Los Angeles, for the benefit of physicians and should be of great value to them. It gives some excellent advice on the matter of keeping and collecting accounts, styles of letters to be used in asking for the payment of bills, etc., and also has a digest of the laws of the various States referring to the subject. It will certainly prove to be worth its small cost if the purchaser will but take the trouble to follow the good advice given.

INTERESTING REPORTS.

The Chemical Laboratory of the A. M. A., has just issued its Fifth annual report and the little volume is of great interest. It contains the analysis of a number of frauds and fakes such as Sanatogen, Resor-Bisnol, Midol, Neurito, etc. It can be had for 50 cents by addressing the Association, 535 Dearborn avenue, Chicago, Ills. and is well worth the money.

BOOK PUBLISHERS IN SAN FRANCISCO.

We learn that Stacey and Waite are going to begin the publication of medical books in San Francisco and that they are desirous of getting into communication with prospective authors. If you are contemplating the writing of a medical book, correspond with them and see whether you can not have the book published as well at home as abroad.

AMERICAN ASSOCIATION FOR CANCER RESEARCH.

At the Annual Meeting of the American Association for Cancer Research, May 5, 1913, the following resolution (the report of the Committee on Statistics and Public Education) was unanimously adopted:

It is the sentiment of this Association that:

- (1) The present instruction of medical students in the symptoms and early diagnosis of cancer is seriously deficient.
- (2) The medical curriculum should include special lectures in the clinical departments dealing specifically with this subject.
- (3) The universities should provide competent lecturers in this subject to address the local medical societies.
- (4) The Associate Members of the Association

should be urged to take up the question of the proper methods of approaching the public on the subject of cancer.

(5) The activities of this Association should at present be chiefly confined to the education of the medical profession.

(6) This resolution shall be sent to the Deans of the medical schools and the Secretaries of the State medical societies in the United States and published in the medical press.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Cholera Agglutinating Serum.—The dried-blood serum of horses which has been injected with killed cultures of the cholera vibrio. It is intended for the diagnosis of cholera by the agglutination of suspected cholera vibrios. H. K. Mulford Co., Philadelphia (Jour. A. M. A., May 10, 1913, p. 1461).

Diphtheria Bacterin.—This is a *Bacillus Diphtheriae* Vaccine claimed to be useful for the treatment of diphtheria carriers and for immunization against diphtheria. H. K. Mulford Co., Philadelphia (Jour. A. M. A., May 10, 1913, p. 1461).

Coli Vaccine (Polyvalent).—For description of *Bacillus Coli* Vaccine see N. N. R., 1913, p. 221. Schieffelin & Co., New York (Jour. A. M. A., May 10, 1913, p. 1461).

Gonococcus Vaccine (Polyvalent).—For description of *Gonococcus Vaccine* see N. N. R., 1913, p. 223. Schieffelin & Co., New York (Jour. A. M. A., May 10, 1913, p. 1461).

Pneumococcus Vaccine (Polyvalent).—For description of *Pneumococcus Vaccine* see N. N. R., 1913, p. 224. Schieffelin & Co., New York (Jour. A. M. A., May 10, 1913, p. 1461).

Staphylococcus Vaccine (Polyvalent).—Schieffelin & Co., New York (Jour. A. M. A., May 10, 1913, p. 1461).

Staphylococcus Albus Vaccine (Polyvalent).—Schieffelin & Co., New York (Jour. A. M. A., May 10, 1913, p. 1461).

Staphylococcus Aureus Vaccine (Polyvalent).—For description of *Staphylococcus Vaccine* see N. N. R., 1913, p. 225. Schieffelin & Co., New York (Jour. A. M. A., May 10, 1913, p. 1461).

Staphylococci Cultures.—These cultures consist of colonies of active living *staphylococcus aureus*. They are intended for the elimination of diphtheria bacilli from the throats of diphtheria carriers. H. K. Mulford Co., Philadelphia (Jour. A. M. A., May 10, 1913, p. 1461).

Luminal.—Luminal is phenyl-ethyl-barbituric acid. It is closely related to veronal, which is diethylbarbituric acid. It is a white, slightly bitter powder, almost insoluble in cold water. It is claimed to be a useful hypnotic in nervous insomnia and conditions of excitement of the nervous system. Merck & Co., New York (Jour. A. M. A., May 17, 1913, p. 1541).

Luminal-Sodium.—Luminal-sodium is the sodium salt of luminal. It is hygroscopic and readily soluble in water. It is used for hypodermic injection in 20 per cent. solutions. Merck & Co., New York (Jour. A. M. A., May 17, 1913, p. 1541).

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Magnesium Perhydrol.—A name applied to mag-

nesium peroxid (see New and Nonofficial Remedies, 1913, p. 185). Merck and Co., New York (Jour. A. M. A., June 7, 1913, p. 1792).

Magnesium Perhydrol, 25 per cent.—A mixture consisting essentially of magnesium peroxid, magnesium oxid with water of hydration, containing not less than 25 per cent. of magnesium peroxid. Its properties, actions and uses are the same as those for magnesium peroxid. Merck and Co., New York (Jour. A. M. A., June 7, 1913, p. 1792).

Magnesium Perhydrol, 25 per cent. Tablets, 7½ grs. Each tablet contains magnesium perhydrol 25 per cent., 0.5 gm. Merck and Co., New York (Jour. A. M. A., June 7, 1913, p. 1792).

Luminal.—(For properties, actions and uses see Jour. A. M. A., May 17, 1913, p. 1541). **Farbenfabriken of Elberfeld Co., New York** (Jour. A. M. A., June 7, 1913, p. 1792).

Luminal Tablets 1½ grs.—Each tablet contains luminal 0.1 gm. **Farbenfabriken of Elberfeld Co., New York** (Jour. A. M. A., June 7, 1913, p. 1792).

Luminal Tablets, 5 grs.—Each tablet contains luminal 0.3 gm. **Farbenfabriken of Elberfeld Co., New York** (Jour. A. M. A., June 7, 1913, p. 1792).

Luminal-Sodium.—(For properties, actions and uses see Jour. A. M. A., May 17, 1913, p. 1541). **Farbenfabriken of Elberfeld Co., New York** (Jour. A. M. A., June 7, 1913, p. 1792).

Solution Amylene-Chloral (50%) Kalle.—A 50 per cent. solution of amylene chloral, a combination of chloral with amylene hydrate. It is soluble in alcohol, but insoluble in water. Its actions are much like those of chloral, but with less power to abolish the reflexes and less irritating. Merck and Co., New York (Jour. A. M. A., June 14, 1913, p. 1881).

Pituitary Liquid.—Pituitary liquid is a sterile solution containing the active principle of the posterior lobe of the pituitary body of the ox. Each cubic centimeter represents 0.2 gm. of the fresh posterior lobe of the pituitary body in physiologic salt solution. It is said to be useful in cases requiring stimulation of the heart or raising of the arterial tension. It is claimed to be valuable in paralytic distension of the intestines and in post-operative and other pareses as well as in promoting uterine contractions during labor. It is supplied as Ampoules Pituitary Liquid, 1 cc. **Armour and Co., Chicago, Ill.** (Jour. A. M. A., June 21, 1913, p. 1957).

Luminal Tablets, 1½ grs.—Each tablet contains luminal 0.1 gm. Merck and Co., New York (Jour. A. M. A., June 21, 1913, p. 1957).

Luminal Tablets, 5 grs.—Each tablet contains luminal 0.3 gm. Merck and Co., New York (Jour. A. M. A., June 21, 1913, p. 1957).

NEW MEMBERS.

Wagner, J. H., Selma, Cal.
McMurty, M. S., Jr., Clovis, Cal.
Arnold, D. E., Kerman, Cal.
Sheffield, H. H., Ferndale, Cal.
Sullivan, Walter H., Sausalito, Cal.
Pinkley, V. M., Woodlake, Cal.
Stratton, L. B., Paso Robles, Cal.
Truxaw, Ino. W., Anaheim, Cal.
Dolman, Percival, San Francisco.
Clark, Ira J., Challenge, Cal.
Browne, Geo. Cecil, Oakland, Cal.
Gregory, A. M., Oakland.
Billingsley, U. C., Hayward, Cal.

DEATHS.

Bull, C. George, Alameda, Cal.
Gardner, A. M., Belmont, Cal.
Martin, J. N., Los Angeles (died in San Diego).
Mills, Chas. Wesley, Arcata, Cal.
Madison, Frank Maitland, San Diego, Cal.
Mahoney, Thos. Louis, San Francisco (died in Sausalito).
Lavenson, Ralph S., Los Angeles.

California State Journal of Medicine.

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be
Typewritten.

Notify the office promptly of any change of address, in
order that mailing list and addresses in the Register may
be corrected.

VOL. XI SEPTEMBER, 1913. No. 9

EDITORIAL NOTES

POLITICS.

It has reached the attention of the Editor of your JOURNAL that certain members of the State Society, mostly in the southern part of the state, have acquired the curious belief that he is in some way "mixed up in politics" and is trying to use the JOURNAL for political purposes. The correct definition of "politics" is the science of government and under that definition and to that extent alone, is the Editor in any way interested in "politics." The good of the medical profession in general and of the State Society in particular and the improvement of public health conditions as they touch upon the domain of the physician, are now and have always been the sole aim and object of the work of the Editor and the Secretary of your Society for twelve years. Party politics or political parties have no special interest for him. It does not matter who proposes and secures the passage of a good bill, be he Socialist, Prohibitionist, Democrat, Republican, or what you will. It does not matter what the name of a party may be to which a governor claims allegiance, so long as he is a good governor and serves the whole people and not his own selfish interests or the interests of his friends. The question of parties has nothing to do with the question of true politics—the science of government. The trouble seems to be mostly due to the fact that so few people are able to take the discussion of any question impersonally; they always must inject a personal element somewhere. If a certain individual, be he governor or dog catcher, is criticized, they must needs rush to the conclusion that the critic

has some personal animosity against the criticized, or that there is an ulterior reason for the criticism. It is sad that this should be so, and yet it is so. Every day we see heated arguments going on about more or less abstract or trivial things, and almost invariably the argument reduces itself, before its end, to a mere personal one and not infrequently to personal epithet. The Editor of your JOURNAL does not know, off hand, to what political party a half dozen members of the legislature belong; but he does know the names of a number who acted very peculiarly or very unwisely at the last session. True politics, the science of government for the good of the people, is the only thing that interests him or that actuates him in shaping the policy of the JOURNAL. As this seems to be a somewhat personal editorial note, it may be as well to add that so far as he knows, personal bias has never influenced any comment or editorial note written by him, that has ever appeared in the JOURNAL. On one or two occasions things have arisen that have involved an individual personally distasteful to the Editor and in such cases he has ignored the subject entirely rather than take the chance of being biased in his opinion. So long as the present Editor remains in charge of the JOURNAL, that rule of impartiality will be followed; no friend and no follower of any political party will be spared deserved criticism for acts that are not for the good of the people or the advancement of the medical profession. After twelve years, the majority of the members of the Society have found that they have not been lied to, deceived or led astray by the Secretary-Editor and they, at least, will know that these statements, so seriously and so earnestly made, are true in fact and in spirit.

REPORTING ACCIDENTS.

There seems to be some confusion in the minds of a good many physicians as to the proper procedure required under the Liability and Compensation Law. Any accident causing a loss of industrial time of more than one week, must be reported by the employer and by the physician in attendance within ten days after the happening of the accident, to the Industrial Accident Board, 907 Royal Insurance Building, Pine and Sansome streets, San Francisco, California. Failure to report such cases within the required time is a misdemeanor and may be punished by a fine of \$100, but any member of the board has the right to extend the time for good cause shown. If a patient, we will suppose, is injured in an accident in the country and is later sent to some large town or city to be treated by a specialist, or another physician or surgeon, the second physician or the specialist must make the same report to the Industrial Accident Board, just as though he were the first physician to see the patient. A number of inquiries have come to this office and we would suggest that all our members who are not familiar with the details and the working of the Act, address the Industrial Accident Board with a request for their circular of information, report blanks, etc.

SHOOTING AT STRAWS.

One of the evils—or problems—that is mostly within the domain of the laity and that merely touches the territory of the physician, is the abortion problem. When the general public shall say that every woman who becomes pregnant shall have her child, unless physical disability prevents, then the abortionist will go out of business. But it is a problem that is distinctly “up to the public” and not to the medical profession. In but rare instances does a physician produce the cause for which illegal relief is demanded. In connection with this is the rather interesting letter which the president of a certain county society wrote to a member who had complained that there were “many notorious abortionists and some in the society” and wanted to know what the society was going to do about it. Here follows the letter:

My dear Doctor:—

Your letter of the 9th inst. interests me very much but is scarcely in a form to be presented to the Directors of the County Society. Certain facts may be notorious but I must confess I have not heard of them. In its present shape your communication might be classed as an anonymous denunciation.

If you can indicate the names of the individuals that are notorious we shall be in a position to take some action.

As to the abortion business, I have long held that the section of the Penal Code which refers to that subject should be repealed. It is a dead letter anyhow. Even in the most flagrant cases, acquittal by jury is certain. Furthermore, as long as the human species continues its hypocritical stand toward women who bear children out of wedlock while condoning every form of immorality (beautifully satirized by Brieux in his “Maternité”) and married women refuse to bear children, this practise will flourish in spite of most stringent laws.

As a matter of fact, the County Society once had a committee on this subject, which handed in a scathing report—what of it?

So if you will kindly give me some data on the matters you refer to you will

Greatly oblige

Yours very truly,

RATHER ENCOURAGING.

The influence of the JOURNAL outside of our own state is certainly perceptible. Even our advertising pages are read in places remote from our own territory, and not infrequently we receive gratifying evidence of that fact. Some time ago we noted that requests for the collection paster had come from a number of different states and also from abroad. Now it is a pleasure to record the fact that from Tennessee and from Ohio have come letters referring to the advertisement of the Physicians' and Surgeons' Telephone Exchange and asking for further information as the scheme seems to be so good that the writers of the letters would like to see it developed in their own

communities. We certainly can commend the idea to them, for it is invaluable to those who have learned to use it in San Francisco.

THE WRITING ON THE WALL.

A year or more ago an address was delivered before the San Francisco County Medical Society on some of the sociological problems of the medical profession. These were divided into two classes—problems or diseases entirely within the profession and problems arising in the domain of the laity and affecting the medical profession; it was shown that nearly all the problems of any special import are those entirely within the medical profession. The fact was pointed out that dishonest commission taking and fee-splitting were petty larceny evils entirely within the profession and that they must be cured by physicians themselves or else the public, rapidly being educated to this unlawful traffic, would take hold of the problem and solve it in a less pleasant way than one which we ourselves might devise. It was a singular coincidence, but within three weeks after that address a popular magazine came out with a very strong article on the fee-splitting evil in the medical profession. Now another line has been written and one that is well calculated to make thinking men sit up and take careful notice; Wisconsin has passed a law making fee-splitting illegal and punishable by fine or imprisonment. It indicates that the community-control idea has taken definite shape and has crystallized in at least one state. In another state a bill was introduced making it punishable if a physician or surgeon took out an appendix that could not be shown to be diseased; in another state a bill was introduced prohibiting any one from doing surgery unless he had had special surgical training duly certified to. The health and the lives of the people are the most valuable asset of a community and communities are slowly but surely waking up to that fact. The only way that a community can, to its best advantage, secure the best possible sanitary control and medical and surgical treatment for its people, is to control those who are permitted to administer sanitary measures and to treat the sick or afflicted. It is the natural and logical outcome of the development of the civilization idea; it is just the reverse of the 4000 B. C. idea, which permitted any one to do as he pleased but fined quite heavily the man who undertook to do surgical work and failed. What can we do to direct this movement into right channels and to see that it is hastened in a proper manner and not wrongly directed or hampered? It is a big problem and it may be generations before it is settled. Can we not help it along somewhat by trying to correct some of the evils within our own ranks? Can we not take hold of this fee-splitting disease and eradicate it? Can we not do something, by careful thought and honest endeavor, to remedy the clinic and hospital disease and cure the lodge and “dollar-a-month” evils? These are questions well worth the careful thought and study of our county units, for they must be corrected from within or they will be unpleasantly corrected from without!

ORIGINAL ARTICLES

EXPERIENCE WITH ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS.*

By F. FEHLEISEN, M. D., San Francisco,
and
MAX ROTHSCHILD, M. D., San Francisco.

PART I. TECHNIC.

Dr. F. Fehleisen.

It is now over three years since we began to treat selected cases of lung tuberculosis with induced pneumothorax, and 45 patients have been inflated so far in Dr. Rothschild's sanatorium. I would like to make some remarks in regard to the technic.

At the time of our first experiments it was impossible to procure nitrogen-bombs in this city, as they are used in the East and in Europe. We had a simple apparatus made here, as described and illustrated by Brauer and Spengler,* and we have been using it ever since, both for the preparation of the nitrogen and for the inflation. It is the same apparatus originally devised by Murphy, with the addition of a cotton filter for the gas and an air-manometer. This inexpensive and easily extemporized apparatus has given so much satisfaction that I describe it for the benefit of those who have none of the modern and more expensive imported apparatus at their disposal.

A and B are graduated glass bottles, connected at the bottom by a rubber tube. C is a cotton filter, D a water-manometer and E stopcocks or clamps. Our bottles contain 4000 cc. To prepare the nitrogen we first pour 1000 cc. of a 20% pyrogallic acid solution in bottle B and then 40-50 cc. 20% potassium hydroxyde solution. The openings at the top of bottle B are now closed but the rubber tube connecting A and B is left open and some pyrogallic acid solution is poured into bottle A. In 24 hours bottle B contains sufficiently pure nitrogen. By filling up bottle A and elevating it we can produce any desired amount of pressure for the nitrogen. The whole apparatus can easily be taken apart and sterilized.

In our first 20 cases we followed the advice of Murphy and Brauer, to expose the pleura for the first inflation by a small incision under local anesthesia and to perforate the pleura with a blunt Salomon needle. This gave good results. Our incisions healed under a small dressing with adhesive plaster by p. i. and the patients did not have the slightest inconvenience after the operation. Later on we used a sharp needle without incision, not because we had any bad results from the incision, but simply because we found it unnecessary in the majority of cases.

The object of the incision, as still advocated by Brauer and his school, is to eliminate the possibility of injuring the lung and the danger of air embolism.

The combined experience of Forlanini and many other well-known men prove conclusively that a properly constructed sharp needle does not injure

the lung, when it enters the free pleural cavity. In the presence of adhesions it may, of course, enter into the lung tissue, but then it does no harm. The experienced operator feels distinctly the resistance of the costal pleura and the needle will not be pushed beyond it more than a few millimeters. This causes no hemorrhage, and infection of the pleura from the lung is impossible when the lung is adherent to the costal pleura. The needle is taken out, in this case, and reinserted in another place where we hope to find no adhesions, and it is a great advantage that we can search the surface of the lung systematically for a suitable place for the inflation without much loss of time when we use a sharp needle without incision.

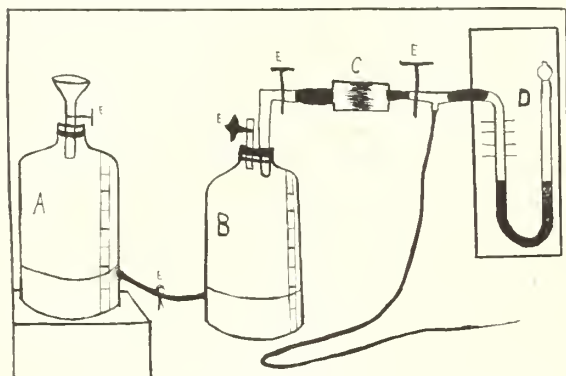
The danger of air embolism should not be underestimated. Several fatal cases have been reported. Most of them were caused by faulty technic or when high pressure was used to break up dense adhesions. There is only one way to exclude every possibility of air embolism: the gas must not be allowed to flow through the needle until we are sure from the readings on the manometer that the needle is in the free pleural cavity. If this is the case, the manometer shows constant negative pressure and the characteristic respiratory oscillations. The negative pressure during deep inspiration may be 8-10 cent. water; if a considerable part of the pleural cavity is obliterated by adhesions it is lower. But always we have constant negative pressure and respiratory oscillations of several cent. water in the pleural cavity. This is not the case if the needle has punctured the lung or when it is extrapleural between costal pleura and endothoracic fascia. In the latter case we have usually slight + — oscillations of the manometer. Should the needle have entered a bronchus, then, of course, we have + pressure during expiration, and same would be the case if the needle should be in the lumen of a vein.

As soon as the correct position of the needle is ascertained, the connection with the gas tank is opened and gas is allowed to flow in under low pressure. It is advisable to stop the inflow for a while after 100-200 cc. are injected. If the patient shows no discomfort, 1000 cc. and more can be given at the first inflation. In many cases we must be content to inject a few hundred cc. on the first day or even less. It is better not to use very high pressure at the first inflation. Later on as much as 25 or 30 c. water pressure can be used in some cases with advantage to loosen adhesions.

I have been asked several times by colleagues what to do when no free pleural cavity can be found after repeated punctures. Even such cases are not hopeless, but the operation is more difficult and sometimes not entirely without danger. The manometer does not show when the needle passes the pleura; you have to rely on your sense of touch. If doubtful, I would make an incision in such exceptional cases. Here Brauer's method may be of advantage even to the experienced operator. As soon as one is convinced that the position of the needle is correct, gas is injected in small quantities, few cc. at a time. Forlanini com-

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

presses the rubber tube near the needle with the fingers, thus forcing in a little gas; others use a syringe filled with nitrogen or oxygen to break the adhesions, but not more than 3 or 4 cc. should be injected at a time. Such small quantities, if injected slowly, would not cause death, even if injected into a vein. After each injection the patient must be watched carefully for a minute or two. If he shows difficulty in breathing, if the pulse becomes frequent, irregular or weak, if the patient



complains of pains or a feeling of oppression or shows other symptoms of embolism or shock from pleural reflexes, then the position of the needle has to be changed or better the operation is postponed.

Holmgren injects in such cases 50-100 cc. normal salt solution before injecting gas. If the salt solution is injected too deep—into the lung tissue—then it causes coughing and sometimes expectoration with salty taste. Fortunately such cases are exceptional. Forlanini has repeatedly stated that the classical cases for gas-compression are those where at least a small part of the pleural cavity is still free from adhesions. Here the inflation, under proper precautions, is almost entirely free from danger and undoubtedly of great value.

Dr. Rothschild's report will show you the favorable results obtained in his clinic, from which I believe we can recommend this method for more general use.

PART II.

EFFECTS OF AND INDICATIONS FOR ARTIFICIAL PNEUMOTHORAX IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

Dr. Max Rothschild.

The great and general interest which has been aroused in the treatment of pulmonary tuberculosis by artificial pneumothorax warrants a short review of the indications for this treatment, and the discussion of some of its interesting points.

At the State Medical Meeting in Santa Barbara in 1910, and also at the meeting of the American Medical Association in Los Angeles in 1911, I had the honor to present a paper on this subject. At that time the treatment was discussed only in regard to its efficiency in cases of severe hemoptysis, but I had already treated a number of cases which had acute septic tubercular process of one side without hemoptysis, by this same method. The

first patients were treated by Dr. Fehleisen and myself about three and a half years ago. Some were cases of hemoptysis and some were cases of one-sided tuberculosis with cavity formation. Since that time forty-four patients have been treated by lung compression and the results have been most satisfactory. In three cases it has been impossible to get into the pleural cavity on account of severe adhesions, and in spite of the fact that otherwise they seemed to be classical cases for Forlanini's method, the operation had to be given up. One case of severe hemorrhage died of miliary tuberculosis about six weeks after the first inflation. Four cases discontinued the treatment before they were advised to do so. In three cases the other side showed signs of progressive tuberculous processes, and treatment had to be stopped on that account. In the other thirty-three cases the results were good. I feel sure these thirty-three cases would have died if the artificial pneumothorax had not been applied.

Before discussing the indications for pneumothorax it might be well to say a few words in regard to the method itself and the logic of its application. One of the most important factors in the treatment of any diseased organ is rest, and recognizing this, we know that tuberculous patients will do a great deal better when kept quietly in bed than if allowed to walk about. Some authorities have tried to enforce this principle by strapping the diseased side, but since the introduction of artificial pneumothorax by Forlanini, it has been possible to compress the diseased lung to such an extent that the breathing is practically stopped.

As Dr. Fehleisen has stated, the operation is a very simple one; the only real difficulty in some cases consists in finding the proper site for the first introduction of the gas. Many cases of tuberculosis of the lungs are complicated by pleuritic adhesions, and a satisfactory compression is only possible when the lung is free. But if these conditions are favorable and the proper place for the first operation is chosen, the method is easily applied and a very complete compression of the diseased lung can be obtained.

Now, as to indications and effects of complete lung compression. First: As mentioned before, it puts the diseased lung entirely out of commission and gives the organ as perfect a rest as is possible. Second: In the majority of cases, it prevents through compression of the lymphatic ducts, an absorption of toxins, and consequently we get in practically all fever cases, a normal temperature one or two days after the compression of the diseased lung. Third: In hemoptysis it compresses the bleeding blood vessel and thus stops the hemorrhage very promptly. Fourth: In cavity formation it brings the walls of the cavities—if they are not too large—together and makes a status curandi possible, which otherwise, through the slow process of granulation, would take many a week or month to achieve; and again, as a result of the compression of this cavity formation, almost immediately after the operation cough and amount of sputum decrease very considerably.

These four features, rest of the diseased lung,

compression of the lymphatic ducts, compression of bleeding blood vessels, and compression of existing cavities are logical deductions. As an effect of these, we see usually a very marked improvement in the general condition of the patient, and after the uncertainty of the first operation is over, most patients are very anxious to have the inflations continued.

I do not want to tire you with any lengthy histories of cases because one resembles another very much. The description of one case will be sufficient to illustrate the great possibilities of the method. The patient, Joseph L. V., 27 years old, was referred to me by Dr. Moffitt in September, 1911. He had had a severe cold for three months, with cough and expectoration, and had lost 49 pounds. He had had a hemorrhage two weeks previous and another one week previous to admission to our sanatorium. Examination showed harsh and prolonged breathing with a few rales in the right upper lobe; bronchial breathing with a great many rales in the left upper lobe; a pleuritic rub in the front and back of the left lower lobe, and a small cavity the size of a walnut in the second intercostal space in the left upper lobe. When the patient entered the sanatorium he weighed 143 pounds, had blood in his sputum, and his pulse varied from 90 to 120, and his temperature from 97 to 101½. The right lung cleared up under rest and the usual treatment, but the amount of sputum did not decrease very much, nor did his temperature become normal during three months' treatment. Therefore, as the right lung was in good condition, it was decided to use artificial pneumothorax. On December 10th the patient had a hemorrhage and his temperature went as high as 101 4/10, and remained high until December 14th, when the first inflation was done. At the beginning the water manometer showed a pressure of 4½; 1050 c. c. of nitrogen were used for the first inflation, as the patient is tall and has a large chest. The next day his temperature was normal, and the sputum had decreased from eight to two ounces. Since then the patient has been treated in the usual way and his temperature has remained normal. On the date of the operation the weight was 150 pounds. Since then the patient has gained continually, and at the date of discharge from the sanatorium, May 27, 1912, the weight was 182½. Since the first inflation the patient has been free from fever, has had no hemorrhages, sputum and cough have disappeared and he has gained 31½ pounds in weight. The left lung was kept under compression until October, 1912. The patient at present is feeling fine, looks the picture of health, and has accepted a position as collector for a life insurance company, which work he can very easily do. So far he has shown no signs of renewed tuberculous activity in the lung.

This case is extremely interesting and instructive, and is one of the best examples one could possibly find to prove the efficacy of the artificial pneumothorax. The patient had been at the sanatorium for three months without any improvement whatsoever in the left lung; he had millions of tubercle bacilli in the sputum; the amount of sputum was

seven to eight ounces in 24 hours; the prognosis was bad and had been bad from the beginning, according to the opinion of both Dr. Moffitt and myself. Fortunately the right lung improved to such an extent that it was considered safe to produce the artificial pneumothorax. The change from the day of the first inflation was so marked and the improvement so rapid and so continuous that the history of the case speaks for itself.

We see in this case an excellent illustration of the four features I have mentioned as the logical results of artificial pneumothorax: rest of the diseased lung, compression of the lymphatic ducts and the disappearance of fever, compression of the bleeding blood vessels with the disappearance of hemorrhages, compression of a cavity with diminishing cough and expectoration.

The X-ray in this case showed a complete compression of the left lung six weeks after the first inflation. This harmonized with the findings on percussion and auscultation. I want to say here, a few words about the value of the X-ray. In nearly all publications on this subject one finds that the examination with Roentgen Rays before and after the inflation, is considered of great importance. We have used the X-ray in many of our cases, through the kind assistance of Dr. Freytag; but personally, I see no great value in the X-ray in this kind of work. It cannot show us anything more than we should be able to find through careful physical examination. The only exceptions are those rare cases in which a hemorrhage is the first symptom of tuberculosis, and in which it is sometimes hard to determine the location of the bleeding focus; here the X-ray is undoubtedly of great help. In all other cases I fail to see its great importance, and I cannot understand why all authorities in their publications state that the X-ray should of course be used during treatment with artificial pneumothorax. Most patients who are suffering from a one-sided tuberculosis, usually show a slight infection in the other side, but if this is so slight that it cannot be found by auscultation and percussion, it need not be considered as a contra-indication for the inflation.

In regard to the indications for the artificial pneumothorax, I must admit that I have changed my view from that which I expressed in 1911 before the American Medical Association in Los Angeles. My experience since then results in the following deduction: It is well worth while to try an artificial pneumothorax in all one-sided cases of tuberculosis in which no improvement seems to take place under the ordinary treatment, and in which the inflation is possible, that is, where the adhesions are not so extensive that they prevent an inflation and compression. If the patient shows signs of improvement under the treatment with artificial pneumothorax, keep it up; if not, do not reinflate. The same principle should be followed in regard to the other side—in case this should be slightly affected. If it should improve through the increased aeration, which the compression of the other side necessitates, keep up the artificial pneumothorax on the bad side; if it should get worse, interrupt the treatment. X-rays, as men-

tioned before, will not help much and are often hard to use continually. The proper physical examination in connection with careful clinical observation has been sufficient in all our cases to guide us correctly.

In conclusion, I want to say that I admit that while all thirty-three cases so far have progressed satisfactorily, this does not insure complete recovery. Some of them may have to be observed a great deal longer before a complete recovery can safely be accepted. But one fact is certain, namely, that the great majority of these cases would surely have died by this time without artificial pneumothorax. And if the more optimistic of us should be disappointed in getting the ultimate results which we hope to get, even the less optimistic observers of this method must admit that the relief and perhaps only temporary improvement it might provide, in properly selected cases, justifies an important place for this method in our therapeutic armamentarium in the treatment of tuberculosis—a fact which I accentuated years ago, but which, unfortunately, has taken a rather long time for some specialists in this field to realize.

PRIMARY INFECTION WITH TUBERCLE BACILLI, WITH SPECIAL REFERENCE TO THORACIC GLANDS.*

By PHILIP KING BROWN, M. D., San Francisco.

In this study of the probably commonest mode of entrance of tubercle bacilli into the human body, in which I am trying to show that the tracheo-bronchial glands are in most instances the seat of the initial lesions and the means of dissemination of the tuberculous process to the lungs in most cases, four lines of investigation have been carried on.

I. (a) A study of the reports of autopsies on children dying of tuberculosis.

(b) A study of the location of the lesions of obsolete tuberculosis from 3000 autopsy records of the Mass. Gen. Hosp. (Drs. J. H. Wright, Oscar Richardson).

II. U. S. Meat Inspectors' reports showing frequency and location of tuberculosis in hogs.

III. (a) Instantaneous X-ray plates of 200 cases of clinically early lung tuberculosis in young women.

(b) Clinical examination and X-ray plates of 15 children of markedly tuberculous parents.

(c) Review of X-ray interpretation of plates in 98 cases of clinically doubtful pulmonary tuberculosis. (Mass. Gen. Hosp., X-ray Dept. Drs. Dodd and Holmes, Jan. 1, 1913, to May 1, 1913.)

(d) X-ray interpretation in 29 cases sent for plates where gland tuberculosis was suspected. (Mass. Gen. Hosp., X-ray records.)

IV. (a) Review of experimental data with reference to v. Behring's theory of ascending infection through lymph channels from intestinal lesions.

(b) Experiments with the dissemination of dead carbolfuschin stained tubercle bacilli injected into rabbits in

- (1) lateral ear vein showing characteristic lung lesions;
- (2) loose tissue around cervical glands;
- (3) right foreleg;
- (4) intraperitoneally.

I. Karlson,¹ who reports the examination of 15,219 children of school age, found—

Signs of lung tuberculosis in.....	1.6 %
Suspicious signs of lung tuberculosis in..	2.2 %
Bone and joint tuberculosis in.....	0.57 %
Enlarged glands in.....	65. %
Presumably tuberculous glands in..	10 to 30. %

Escherich² from a clinical and anatomical study concludes that in aerogenous tuberculosis of the lung with walling off and caseation of bronchial lymph glands and terminal rupture into the blood stream or bronchus, we have the typical and characteristic course of tuberculosis of infancy.

Ghon⁷ on the other hand regards aerogenous lesions of the lung tissue itself as primary and the most frequent source of the disease, and in 184 autopsies on children with lung tuberculosis he thought the lung lesions showed a more advanced state than the glands and held that the fan-like arrangement of the lesions suggested a spread from the pulmonary focus to the hilus as the course of the lymph stream was in that direction. An hematogenous route he excluded because in 85% of the cases only one lesion was found instead of the multiple ones usual in metastatic processes.

These observers present facts and suggest interpretations that are not altogether in accord, and indicate a variance in opinion regarding the entrance of tuberculosis into the human body and its spread. It is generally recognized that moist or dry particles of tuberculous matter contained in the inspired air are stopped in the trachea and large bronchi, and may pass through the uninjured and intact wall into the lymphatics and be deposited in the glands. The frequency which will be shown of gland involvement as compared to any or all other primary lesions makes pertinent the suggestion that lymphatic defense is occasionally overcome either through massive invasion or diminished resistance, and in fact the lymphatic defense once sufficiently overcome may lead to its actual participation in the invasion. The massive tubercular pneumonias from rupture of glands into bronchi and the hematogenous route in miliary tuberculosis of the lung alone are due to this cause.

There remains still the vast majority of cases of pulmonary tuberculosis which present a picture of exceedingly mild trouble seemingly localized in a small area. Many of the extensive involvements also have been so insidious in their course and progress as to suggest an exceedingly insignificant beginning. It is an explanation of the beginning and progress of this type of the disease that is attempted in this paper.

Allbrecht³ in 2000 autopsies on children reports 6% of primary tuberculosis in the intestinal tract and glands, whereas a "great majority" were primary in the lung. In no case was the cervical lymph gland tuberculous without tuberculosis of lungs or tracheo-bronchial glands.

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

Wollstein⁴ from N. Y. Babies' Hosp. material says, "even in childhood the respiratory tract is more frequently the entrance point than is the digestive, and in 185 cases there was no case of mesenteric lymph gland involvement as the only tuberculous lesion in the body."

Medin⁵ in 595 autopsies on tuberculous infants under 1 year found only 6 cases of primary intestinal tuberculosis while 273 involved the lungs and bronchial nodes alone.

Comby⁹ in 1432 autopsies on children found tuberculosis in 529 cases, the peri-bronchial glands being constantly involved. He claims that these glands represent the aerial port of entry of the Koch bacillus. He has never observed primary tuberculosis of the intestines.

White and Carpenter, reporting their experience in the Children's Hospital in Philadelphia on pulmonary cavities in infants state "in infants dying of tuberculosis the lungs were involved in 100% of the cases." Osler quotes the New York Foundling Hospital statistics, where in 125 autopsies the bronchial gland were tuberculous in every instance.

Shennan¹⁰ in a report of the Royal Edinburgh Hospital for children material of 413 autopsies on tuberculous children says "from the standpoint of dissemination of tuberculosis throughout the body, the thoracic gland tuberculosis is the more important and common" (as compared to other sources, especially abdominal tuberculosis). "Dissemination had taken place in most cases apparently from caseous lymphatic glands, principally of the mediastinal group." Shennan lays repeated emphasis on this mode of dissemination and the fact that these glands are involved frequently without tuberculosis of the lungs (33 in 281 cases).

The autopsy records of the Mass. Gen'l. Hosp.¹⁷ give fairly complete data regarding obsolete tuberculosis and in tabulating the 3000 records by hundreds and striking an average where for certain periods no mention is made of glands, it develops that as far as mention of tuberculosis goes the lungs alone were involved.....156 times
bronchial glands alone.....600 times
mesenteric glands alone..... 69 times
bowel alone..... 5 times

It is obvious that absolute data could only be obtained where in making the autopsies special reference to this point was made. However, the point is clear enough that upon microscopic examination the glands are involved alone about four times more frequently than the lung. If one considers the point emphasized by Rabinowitch's¹⁶ review of the literature on latent infection of the glands determined by animal inoculation, it is probable that the relation of primary tracheo-bronchial gland tuberculosis to primary lung tuberculosis would be nearer 8 to 1.

II. *Evidence of Primary Involvement of Glands, Particularly of Thorax in Animals.* The Bureau of Animal Industry, Washington, D. C., reports¹⁵ that on consulting files of post-mortem reports, which are filled at the close of each day's work at all abattoirs having federal inspection, it

developed that of 1237 tuberculous cattle, 155 were affected in the cervical glands only, 533 in cervical and thoracic glands only, 124 in cervical and thoracic glands and also in the lungs. The mesenteric glands alone were tuberculous in 4 instances, the mesenteric and thoracic glands in 115 cases, and there were 306 cases of generalized tuberculosis.

These reports of tuberculous cattle were from various parts of the country, being compiled from the records in cities in six different states.

Ryder,¹³ in charge of the Boston station of the Bureau, has made a careful post-mortem examination of 59,460 hogs, of which number 50 carcasses showed lesions of the gastro-hepatic glands and of the bronchial glands. "In fact our study of the lesions of hog tuberculosis shows that next in the order of frequency to the submaxillary gland infection comes the combination of the submaxillary with the bronchial glands, then the sub-maxillary, bronchial and gastro-hepatic glands, next the submaxillary, bronchial and gastro-hepatic glands, and the liver."

In a certain small number of cases infection probably occurs directly through the respiratory tract, but these instances are extremely rare.

"The disease in hogs is essentially produced by ingestion, therefore the glands and tissues associated with the digestive tract are the most frequent seats of infection. Indeed, the superior cervical glands (in almost all cases the submaxillary gland), are nearly always affected, as at the post-mortem examinations held by the bureau inspectors over a consecutive period on 120,000 hog carcasses, 93.3% were found to contain lesions in these glands. The large tonsils and the large number of lymph sinuses in the lymph glands probably account for the frequency. *Next in importance are the bronchial glands of which 27.2% were diseased*, while the gastro-hepatic chain of glands was involved in 21.6% of the cases. In all these cases the lesions may involve the entire lymph structure, or only the central or several irregular points, and may be either caseous, calcareous or caseo-calcareous. The mesenteric lymph glands showed lesions in 18.1% of the carcasses examined. The liver was affected in 9.2 of the cases. The lungs are the next tissue to be most frequently affected, as it is represented by 7% of the carcasses above recorded. The morbid anatomy of the lungs in this disease simulates that observed in human tuberculosis more than in cattle tuberculosis. In fact, the disease bears many points of similarity to infantile tuberculosis in the human. There may be tuberculosis pneumonia involving large areas of the lungs, causing collapse of the marginal portion. There may be irregular sized grayish or yellowish areas of caseation, as is so often seen in cattle, but not infrequently there are observed large areas of miliary gray or translucent foci, showing evidence of generalization as a result of the bacilli being disseminated by the blood stream."

The chief point in these abstracts from Ryder's article is that the lungs are involved in 7% of cases whereas the bronchial glands are involved in 27.2%.

It is thus shown conclusively in childhood, in adult life and in the animals most commonly afflicted with tuberculosis that the usual primary lesions are in the chest glands and not in the lung. This being the case what is the connection between tuberculosis of these glands and lung tuberculosis? To deny direct aerogenous infection of the lung subsequent extension along lymphatics or bronchi is not at all suggested. Early lung lesions, however, do not indicate that this is the commonest way, but rather that there is a retrograde infection along the lymphatics from tubercular disease of the root glands.

III. *Evidence from X-ray Examinations of Extension of Lung Tuberculosis from Hilus Glands.* The evidence presented by instantaneous X-ray plates suggests exactly what is shown at autopsy in children and in the obsolete tuberculosis in adults—namely that enlarged glands in the hilus are vastly more common than supposed and in the absence of physical and X-ray signs of lung tuberculosis, this condition must account for the relative frequency of skin and subcutaneous tuberculin reaction. Indeed it is a common condition in children and adults with positive tuberculin reactions and negative findings to auscultation and percussion, that the hilus glands are found involved on X-ray examination. It may be suggested that the subsequent or concurrent lung involvement is due to independent direct aerogenous lung infection, but in answer to this the lung in that case would not be involved so constantly in the direct path of what X-ray shows to be the extending infection outward along the lymphatics.

IIIa. The X-ray plates made by Dr. Anna Davenport of all the applicants for admission to Arequipa Sanatorium for early cases of tuberculosis in women, together with a number of private cases in women, were made a basis for the study of hilus gland tuberculosis and their possible relation to the lung process. In a series of over 200 plates of early cases about one-half presented striking evidence of a V-shaped segment of lung in which the linear markings were thicker than elsewhere in the lung and were described as mottled, nodular or beaded. The distal portion showed diffusely increased shadow in some cases or definite more or less plain nodes, often in groups, but sometimes single. Occasionally such nodes, more marked than the beaded appearance, occurred somewhere between the hilus and the periphery, emphasizing the greater development of the process at those points as it extended. But most significant was the frequent occurrence of nodular outlines in the hilus of the affected side and generally in that part of the hilus from which the thickened linear markings emerged. From these hilus nodules extending toward the periphery at short intervals or apparently in chains were progressively smaller nodules suggesting nothing more plainly than direct extension outward. In a few cases large mediastinal glands could be seen protruding their shadows from that cast by spinal column and sternum. In one such case an abscess of the root extending outward from a group of very large glands seemed

due to the breaking down of one gland and the dense V-shaped shadow extending out from the root to the axilla suggested a tubercular pneumonia from acute and intense diffusion, such as might have occurred had one of the larger secondary bronchi been invaded by the abscess discharge. The clinical signs were insignificant at first compared to the X-ray picture but increased rapidly in intensity as the periphery of the lung was invaded. Localized Miliary tuberculosis and processes which we describe as tubercular pneumonias probably all arise in this way. General miliary tuberculosis, of course, arises through the blood stream, but when it is localized in one lobe or part of one lobe it is always a segment with its apex at the hilus and it cannot well be accounted for in any other way than by extension along a bronchus or rupture into an afferent blood vessel. But bronchial and blood vessel extensions are not the common method of spread of the disease in the early stages, for we find in early cases far more frequently the hilus glands enlarged and a beaded chain of glands smaller as they extend outwards and connected by thickened shadows of the bronchial tree.

Argument against extension in the reverse direction of lymph stream does not seem to stand in face of the repeated instances of infection against definite currents,—for example ascending infection of the pelvis of the kidney, pleuritis at the right base behind in acute appendicitis and pleuritis peripheral to a lung cavity where there is microscopically healthy lung between cavity and pleura.

So much detail is lost in reproducing X-ray plates for illustration that I have omitted them. To illustrate diagrammatically as Ghon⁷ has done, is not to strengthen the case, since my observations are exactly the opposite of his, nor in contending for the primary involvement of the lung and secondary of glands does he explain why these very glands in children, in obsolete tuberculosis in adults, and in animals are involved 4 to 6 times more frequently than are the lungs.

IIIb. Fifteen children of known tuberculous parentage reacting to skin tests but with no other definite signs of lung tuberculosis were X-rayed, and in every one there were enlarged hilus glands in distinct contrast to 16 children in the same families who showed neither hilus glands nor skin reaction.

Both of these groups seem very important, for they indicate a marked dependence of the clinicians on the X-ray findings in doubtful cases and a growing appreciation of the possible presence of deep-seated lesions in cases where ordinary lung examinations are negative. That there is a noticeable connection between hilus gland enlargement and lung shadows is evident by the interpretations of the radiographer, and in conversation with Dr. Holmes of the X-ray department of the Mass. Gen'l. Hospital he expressed himself positively in two particulars, that the glands are involved first and the extension is outward, and that the extension must very often be along the

lymph channels causing the thickening since neither blood vessels or bronchi are thickened in early processes.

IIIc. From Jan. 1 to May 1 Drs. Walter Dodd and Holmes (Mass. Gen'l. Hosp. X-ray dept.), have made 98 plates of chests of patients suspected clinically of having early pulmonary tuberculosis. The X-ray interpretations are as follows:

Lungs definitely involved.....	46
Doubtful	12
Negative	1
Lungs involved, peribronchial glands enlarged	9
Lungs involved, glands enlarged, markings thickened.....	12
Lungs involved, glands not mentioned, linear markings noted as thickened or studded.....	8
Lungs not diagnosed tubercular, but glands enlarged and markings thickened	10
	<hr/>
	98

There were 19 cases on record since Jan. 1st, 1913, where involvement of the thoracic glands was in question clinically. The X-ray interpretations were as follows:

Lung alone involved.....	0
Glands alone involved.....	8
Glands and thickened markings.....	4
Glands and lungs involved and thickened	7
	<hr/>
	19

Jordan, radiographer of Guy's Hospital reported recently on the X-ray findings of 150 consecutive plates of cases of clinically positive tuberculosis with bacilli in the sputum. X-ray showed:

Purely apical tuberculosis.....	32
Confined to roots.....	59
Apex and root on one or both sides..	59
	<hr/>
	150

He adds that the apices of the lower lobes are included in the enumeration.

IIId. Localized miliary involvement of the lung can be explained only on the ground of rupture of a softened focus with an afferent vessel or bronchus. That the latter occurs we know, but the rupture into blood vessels without signs of hemorrhage is hard to understand.

Occasionally in obsolete tuberculosis of the lung a healed nod of air born infection one can only surmise. They are not common and not easily accounted for.

The extension of the studded and thickened linear markings to all the definite peripheral lesions in a given case, and even to areas adjacent to seats of definite lung involvement, suggests constantly afferent and not efferent spread of infection, in the latter case the markings would show

from the obvious lesions to the hilus glands only. This is not the case, however, for the markings with the nodular thickenings frequently proceed to no definite lesions, and where they do so proceed they seem to be disseminated to neighboring parts as well. Frequently the most peripheral early lesions are the most advanced, but in every such case it is a matter of note that the lesions are just below the pleura as if the bacilli had been carried rapidly as far as they could be, and there had made their stand.

IV. *Experimental Dissemination.* Of the light thrown on the subject of modes of entrance and dissemination of tubercle bacilli in the human body through experiments on animals, not much can be said.

An ascending infection of the lungs from lesions in the bowel and mesenteric glands was suggested by Von Behring and the case was well presented by Harbitz,¹¹ who reviewed the literature on this subject and established the point. Tracing out the course of the infection has been tried by the injection of various pigments, chiefly blue, china black and cochineal into the gut or peritoneum. No very striking results have been obtained (19, 20). Calmette found results of peritoneal injections of insoluble substances in young animals always negative, and so many old animals have acquired a lung anthracosis that results are not easily interpreted. Mace tried talc and recovered it by chemical test, but got negative results.

Bacilli have been fed to animals even through a tube and have been introduced into the stomachs of animals through operative wounds, but no results of the details of the spread have been obtained. Ravenel showed that the bacilli did reach the lung. Even a few hours after injection or feeding live bacilli to rabbits he removed the lungs, macerated them and injected a part into animals, thereby producing a tuberculosis. This does not show us how the extension goes on. It is obvious, however, that if the lungs are infected rapidly, the infection must spread directly through normal channels of lymphatics and reach the circulation.

To meet the problems involved a number of experiments were undertaken on rabbits into whom were injected dried dead tubercle bacilli stained with carbolfuchsin washed in weak acid alcohol and repeatedly in salt solution and then ground up as fine as possible in a mortar. They showed a decided tendency to clump and grinding was necessary on that account.

Injections were made into the lateral ear vein in order to show the type of lesions that would be made in the lung, then into the region of the cervical glands, the right fore leg and the peritoneal cavity. Injections were repeated daily for four days.

The results of the experiments will be reported in detail later. So far they promise to mark out certain channels very well, but the tendency to local abscess formation is a serious handicap. Less frequent and less massive injections promise better results.

CONCLUSIONS.

In man and commonly susceptible animals the tracheo bronchial and hilus glands are the commonest seat of definite tuberculosis.

They are involved about four times more commonly than the lungs.

This fact fits in with evidence of X-ray plates in early cases of extension outward:

Through rupture of caseous glands into bronchus, making caseous tubercular broncho pneumonia.

Through afferent blood vessels causing localized miliary lesions.

Through rupture of, or extension from caseous glands into lymphatics, making common type of mild local lesions which like areogenous infection of lung tissue respond relatively easily to treatment.

Ascending infection from abdominal lesions play a definite but small role.

Animal experiment on mode of diffusion of tubercle bacilli are not yet satisfactory.

Bibliography.

1. Karlson. Relative frequency of gland and other forms of tuberculosis. VI International Tuberculosis Congress.
2. Escherich. Wien. Klin. Woch., '09, p. 515.
3. Albrecht. Wien. Klin. Woch., '09, p. 327.
4. Wollstein. VI International Congress for Tub., 1908, Vols. II, III and IV, p. 423.
5. Medin. VI International Congress for Tub., 1908, Vol. II, Sect. III and IV, p. 423.
6. Bovaird. VI International Congress for Tub., 1908, Vol. II, Sect. III and IV, p. 446.
7. Ghon, A. Primary Pulmonary Lesions in Tuberculosis of Childhood, Monograph, 1912.
8. Gaffky. Tuberculosis VI, p. 79.
9. Comby. VI International Congress for Tuberculosis, 1908, VII, p. 507.
10. Shennan. VI International Congress for Tuberculosis, 1908, Vol. II, p. 367.
11. Harbitz, N. Mag. S. laegey. nr. 1, 1913. Reprint. Journal of Infectious Diseases, Vol. 11, 1905.
12. Birsch Hirschfeld. Deutsche Archiv. fur Klin. Med., 99 LXIV, p. 58.
13. Tuberculosis of hogs. Mohler and Washburn, Circular 201, Bureau of Animal Industry, pp. 13 and 29.
14. The Prevention of Tuberculosis. A. Newsholme. Monograph, 1908, pp. 46, 80 and 106.
15. Personal communication from Dr. J. Mohler, Chief of Dept. of Pathology, Bureau of Animal Industry. Rabinowitch. Berliner Klin. Woch., 1907, S. 35.
16. Review of these 3000 records made by Dr. R. C. Cabot.
17. Jordan, A. C. Practitioner, 1912, p. 248.
18. Calmette, A. A. de l'Inst. Pasteur, 1905. XIX 601, 1906; XX, 353.
19. Mace, L. S. Jour. A. M. A., LHI, 1252; Archiv. Int. Med., 1910, p. 532.

Discussion.

Dr. W. C. Voorsanger, San Francisco: It is rather difficult to discuss three such comprehensive papers in five minutes! To briefly discuss those of Dr. Brown and Dr. Crosby, they have emphasized a fact recognized for many years, and one looking toward the prevention of the spread of tuberculosis. About seven years ago Dr. Lehman and myself published a paper on the use of the X-ray in early cases of tuberculosis. At that time the X-ray was not as well understood as to-day, but we were able to trace very often the tuberculous process as originating in the lung hilus. I think the spread of tuberculosis from the bronchial or peribronchial glands is a well established fact, and in the tuberculosis clinic in San Francisco we make it a matter of routine to examine members of the family of any patient who has tuberculosis. We have about 400 cases of tuberculosis under observation and every member of their families has been examined where possible. We hear a great deal about the spread of tuberculosis from the peribronchial glands, but nothing is said about the care of the young children with enlarged glands. I have treated them almost as incipient cases of tuberculosis. Besides the hygienic treatment, minute doses of tuberculin are given for three or four years.

Regarding the artificial pneumothorax. I was particularly interested in the number of cases because, if we are going to follow what has been taught by men who have done a great deal of that work in the last few years, we must realize that the number of cases available for artificial pneumothorax is necessarily small. Forlanini has been able to report on 163 cases. Brauer two years ago, in conjunction with Spengler reported 101 cases and probably to-day has added but 25 cases to that number. Only a few months ago I saw Brauer work. He is very inspiring, and when you see him work you think his method is the only one. But after you have seen a few men work with the Forlanini method, you are not so sure that you want to use Brauer's method. The technic of the operation, as has been said, is simple. It makes little difference what the shape of your cylinders are if they contain nitrogen—it is important, however, that you should know how to read the manometer. To facilitate the operation, I think it is a good idea to get a tank of nitrogen. The important part is the indication. I do not believe we should choose our cases lightly, because recently it has been shown that a lung which has been compressed does not regenerate as well as one which has not. The experiments of Kaufman on animals show that the lung is so changed that it is almost impossible for it to regenerate into healthy tissue.

Dr. W. V. Brem, Los Angeles: Dr. Brown indicated the difficulty of determining whether the progress of the infection is from the glands to the lungs or from the lungs to the glands. I do not think the X-ray lends itself to the study of this particular problem. Dr. Brown cited the Edinburgh autopsies and said that in 30% of gland involvements there was no lung involvement, but he did not state what percentage of bodies with lung involvement showed no involvement of the glands. Some years ago I published statistics of 287 autopsies, studied with special reference to microscopic evidences of tuberculosis. Seventy-four per cent. of the bodies showed tuberculous lesions. The peribronchial glands were involved in about 30%, the lungs in about 60%. In about 30% of the glandular involvements there was no lung involvement, and in 40 to 50% of the lung involvements there was no glandular lesion. It is probable that each can be involved directly, without the bacilli passing through the other. On the other hand, it is conceivable that the bacilli may pass through the lungs to the glands or through the glands to the lungs without producing macroscopic lesions. Calmette in France, and Ravelin in this country, think that a great percentage of infections are of gastrointestinal origin and leave no trace of the route of infection. Harbitz and others, using glands showing no macroscopic evidence of tuberculosis, have produced tuberculosis in guinea pigs. Von Behring and Römer think that the ability of the adult to localize tuberculous infections and prevent them from becoming generalized is dependent upon an immunity acquired from an infection early in life that often leaves no trace of itself.

It seems altogether plausible, therefore, that bacilli can pass either way, from lungs to glands or glands to lungs, without leaving a trace of their passage through the first organ, but it seems to me probable that the channel of infection coincides with the direction of lymph flow, and that it is from the lungs to the glands.

Dr. Edward von Adelung, Oakland: We are discussing an advanced field of medicine, and therefore my views are rather tentative, having been gathered from a limited experience. I have been led to a position which would endorse Dr. Rothchild's general statements. First, as regards the apparatus—it is really Murphy's of Chicago, and can be put together by anybody. I want to call attention to the manometer. Everyone realizes the importance of having a manometer and knowing how to read it. One question I want to ask

is how to read this manometer—an elementary question. Will one of the readers of the papers tell me how to read this manometer, when the level of the fluid on one side is -5 and the other at $+5$? Is it 5 or is it 10? My next remark is a suggestion: We can avoid a percentage of pus complications occurring in the pleura by being sure that the gas is sterile. This is easily attained by passing it through hot tubes before using. Furthermore, the gas will be better tolerated if, instead of using plain water in the bottles, we use a bichloride solution, very hot. This insures not only asepsis, but heat and moisture as well. It should be noted in talking about the technic that the manometer will not register if there is any moisture in the needle. It must be clear of blood and water. The next item is that when we produce a pneumothorax of considerable pressure we are likely to get cutaneous emphysema, which in one case I had extended down along the outer edge of the rectus muscle into the scrotum. I suggest that some anatomist study the courses of subcutaneous emphysemas. My personal view regarding the relative value of the Forlanini and Brauer methods is that I prefer the needle method. I have not been convinced that dissection to the pleura has advantages over the needle. I therefore ask my second question: Has the reader run across any cases in which, having failed with the needle, he succeeded by Brauer's method?

Dr. B. F. Howard, Alta: I wish merely to ask a question as to the artificial pneumothorax. It has been suggested that in cases of pleural effusion, the effusion should be withdrawn and the space filled with nitrogen gas. In some cases failure has resulted because of infection. I would like to ask whether, in any of the cases reported, advantage has been taken of this method of replacing serous (pleural) effusion. Of course it has some of the advantages of effusion, which is nature's method of compressing the lung, without some of its disadvantages. I would like to know if Dr. Rothschild or others have successfully accomplished the preservation of this compression by refilling the pleural cavity with gas after having withdrawn the exudate—without in any way complicating the situation.

Dr. F. M. Pottenger, Monrovia: I was especially interested in the first two papers from the standpoint of the importance of latent tuberculosis. We have been too apt to disregard the early symptoms. Latent tuberculosis is not the simple harmless affair that we have been teaching for many years; it deserves just as much attention as latent syphilis. The fact that so many people are infected (80-100% of children are infected before the 14th year, in families where tuberculosis has existed) makes us hesitate to give the serious attention to latent tuberculosis that it deserves. We hesitate to consider a great portion of the population as suffering from so serious a disease. We should not fail, however, to bear in mind the fact of the frequency of infection, and that many of those children who are poorly nourished and show slow development, with lack of endurance, are suffering from this disease. If these children react promptly to tuberculin they should be treated as tuberculous, and I think if we did that we would do much to prevent clinical tuberculosis in the adult. Regarding the route of infection: as far as we know to-day, all we can say is that bacilli may be taken into the body through abrasions of the skin or through the mucous membranes of the respiratory and digestive tract. We know, however, that nearly every child becomes infected before the 15th year. Tubercle bacilli taken in small numbers unquestionably produce immunity toward further inoculation, but sooner or later, so many bacilli are taken in, infection results. The point is to watch these early infections and be sure they heal. I have been much interested in artificial pneumothorax but have not done it. Not that I

am opposed to it, but I have obtained good results without compression, and I think the patients treated without it will be better off at the end of five years than if it had been done.

Dr. Daniel Crosby, Oakland: Regarding the question of the X-ray not showing these conditions, it seems to me this is a very hard statement for some of us to accept, because while we find some children who present what the average of radiographers consider normal hilus shadows yet we find a number presenting areas of thickening going out into the normal shadow from the middle of the chest. I want to emphasize the work of Jordan, in which he took 52 lungs passed as non-tuberculous by the pathologist in Guy's Hospital and in which he demonstrated the remains of old healed tubercular pneumonia. The picture helps to show an unbelieving patient his or her variation from normal, and if you are going to deal with tuberculosis in its incipient stage, whether or not there is active tuberculosis, the X-ray is a very helpful means of demonstrating the diagnosis.

Dr. F. Fehleisen, San Francisco: In regard to Dr. von Adelung's question, I want to say that I have mentioned that the apparatus was originally devised by Murphy, but the sketch is taken from Brauer and Spengler's publication. In regard to Dr. von Adelung's second question, it is my belief that the manometer should be read from zero.

Dr. Max Rothschild, San Francisco, closing discussion: In regard to Dr. Voorsanger's remark that tuberculosis in children originates from the bronchial glands, I want to say that this question is by no means solved. Whether the original infection takes place through the air, or blood, or intestinal tract is still open for discussion. Last month George Simon published a most interesting article on this subject in Brauer's Klinik. He seems to think that in all cases of tuberculosis of bronchial or peribronchial glands the primary focus of infection lies in the lung itself and can usually be found in the post-mortem, also often in the X-rays. He bears out the findings of Albrecht, Kuess and Naegeli in this respect.

In regard to artificial pneumothorax, I want to say that in my opinion the number of cases available for this method will increase in time. Reports show that almost all the institutions for the treatment of tuberculosis in the old country which did not use the artificial pneumothorax three or four years ago are now using it—most of them with good results. To give an opinion of any value in regard to a comparatively new method, one should have some personal experience—it is not sufficient to watch some one else, as Dr. Voorsanger did, and then form an opinion. While it is always advisable to be conservative, it is sometimes a mistake to be too much so. At present I do not apply an artificial pneumothorax before the cases in question have been observed at least two to three months. If I see no improvement during this time with the ordinary treatment, and if the cases are otherwise suitable for the method, I try the pneumothorax. One point is an absolute fact, and that is that Forlanini's operation, properly used, cannot do any harm. The nitrogen which is used during the first inflation is usually absorbed in 24 hours. If one notices that the patient seems to feel better during this time or does not feel any worse, the reinflation is indicated. I want to confirm Dr. von Adelung's observation in regard to cutaneous emphysema. It is a common complication, especially in the beginning of the treatment, but does not amount to anything other than giving the patient some slight discomfort for the time being. In regard to Dr. Howard's question about withdrawing pleural effusion and replacing it with nitrogen, I want to state that we have done this in a few cases. I would not do it again. The effusion has practically the same effect as the compression with nitrogen. Referring to Dr. Pot-

tenger's remark about latent tuberculosis, I am glad that he brought up this question. I have been most interested in this subject and have given my views on the same in a paper, "Latent Tuberculosis, Its Symptoms, Treatment and Prognosis," read before the State Medical Society in 1901. It is of the greatest importance to diagnose a tuberculous condition before it becomes really active—if it is possible to do so, and in a great many cases this can be done. If we see children or adults in a weakened or slightly anemic condition, inclined to catch colds very readily and to cough persistently and repeatedly, it is always wise to make a tuberculin injection for diagnostic purposes. The skin tests are not sufficient. If the patient reacts positively to the injection, a treatment with tuberculin might be tried, and it is surprising what excellent results are frequently obtained.

MANAGEMENT OF FRACTURED CHARCOT HIP JOINT.*

By REXWALD BROWN, M. D., Santa Barbara.

This type of clinical picture may present itself. A man seeks the attention of a physician with a history somewhat as follows: Three weeks ago he slipped on the street and fell heavily on to the pavement, or he was thrown roughly against the side of a motor car because of a collision. The accident was seemingly of no moment, for he was able to immediately walk away—he limped considerably, but suffered no pain. During the succeeding days his lameness increased, but he gave little attention to it, as there was no suffering. He has been using crutches for the past three or four days because he stumbled and cannot control his leg well—he thinks his foot is turned out somewhat and leg seems shorter than the other. During the past week the region of the hip has become much swollen, but it has not hurt him. On examination a large, firm swelling is found over the hip anteriorly and posteriorly. There is no tenderness on palpation, and the joint can be moved without causing any pain.

Fracture, dislocation or sarcoma may be thought of; but no, these are always associated with much pain, especially the fractures and dislocations, either immediately at time of injury and upon any movement of the joint. Perhaps the physician is or is not nonplussed for the moment, depending on whether or not he focuses on the dominant note in the picture—*absence of pain*. What does it mean? A neuropathic or Charcot joint, and almost invariably tabetic in nature.

To safeguard his views the physician hastens to inquire regarding a venereal history; he looks for the Rhomberg sign, the Argyle-Robertson pupil, the loss of knee jerks, et cetera, and if still in doubt, a positive Wassermann makes conclusive his diagnosis. Further a skiagram shows a fracture of the neck of the femur.

What is to be done? The condition is certainly a desperate one. An intracapsular fracture is itself a sufficiently difficult matter to handle, a Charcot joint almost invariably tends to progressive destruction of the joint structures, and a tabetic pa-

tient is not an altogether favorable risk for surgical attention.

The embryology of joint formation must be known in order to understand the changes in a Charcot joint whatever be their pathogenesis, which is covered by the use of the phrase trophic in nature. In early embryonic life there are no joints. The ends of the young bones are separated by an indifferent mesoblastic connective tissue which extends on either side on to the shafts of the long bones, becoming ultimately the periosteum.

When the joints begin to form this interposed connective tissue transforms into cartilage except externally where it is continuous with that covering the shafts. The cartilage finally divides in the median line and the joint cavity is formed separating the articular surfaces of the two bones. This closed cavity has as its wall or capsule therefore remains of the original mesoblastic connective tissue. Continuous as it is with the periosteum with its definite layer of osteogenetic cells, it is readily comprehended that the joint capsule has the necessary elements in potential to produce bone.

The pathology of a Charcot joint is most frequently that of a rapidly developing hydrarthrosis, with subsequent uneven disorganization of cartilage and bone, and enormous irregular ossification of the fibrous layer of the capsule. Often there is marked peri-articular edema and the projection into surrounding muscles of osteophytes from the ossifying capsule. The extent of the destruction which can occur in a hip joint will be cited in the case report to follow. A fracture in a Charcot hip joint assumes any of the usual types of intracapsular fractures in normal joints.

What method of management can best serve a patient who suffers from this complicated and appalling lesion? Attention is given naturally and the usual measures undertaken to limit the development of the tabetic disturbances in the cord. Slow progress of course pertains here, and in the meantime the patient has become a cripple, confined to bed or goes about on crutches. The enlargement about the joint has increased and there is muscular atrophy and stiffness.

Whereas some Charcot joints do not progressively grow worse, but even seem to improve at times, the influences produced by a fracture, however, conduce to continuous metaplasia of the bony and cartilaginous structures. Distortion of the joint appears and is combated by more or less efficient brace support. Further than these methods there has been little of value. Attempts have been made to remedy the condition by open operative procedures such as resection and drainage of the joint. These measures have been productive of no really accepted additions to the treatment.

The ill results were due perhaps to the failure to appreciate that the joint changes would persist as long as the joint structures persisted. That is, regardless of the origin of the destructive forces in a Charcot joint, whether they be in the cord or in the joint itself, the structures on which the forces are expended in the main are the cartilages and the capsule. In the above operations the cartilages

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

or the capsule or both remained, and consequently the osteogenetic and osteoporotic changes continued.

Only comparatively recently has new thought been directed to the management of fractured Charcot hip joints. This thought, largely J. B. Murphy's, has reached back into the embryology of joint formation and has appreciated the significance of the capsule in the pathology. The capsule shorn of its normal functions by the irritation of luetic or other toxine reverts back to its elemental potential function and produces bone.

Then to cure the disease the hip joint must be obliterated—an arthrodesis must be performed. Success is to be gained only by excision of the entire capsule and synovial membrane, complete removal of the cartilage bearing bony structure from the head of the femur and from the acetabulum and cutting away of all excess bone. To secure firm bony union the neck of the femur must be nailed to the acetabulum. The reduction of the fracture and the maintenance of the fragments in apposition is likewise attained by this last step as the nails are driven through the neck in a direct line from the base of the great trochanter.

The steps in the operation are: (a) A large U shaped incision is made over hip with the trochanter in the center of the U. (b) With a chain saw, the trochanter is sawed off downward and outward and then retracted with its attached muscles upward. (c) The obturators and pyriformis muscles are divided and ends transfixed for subsequent approximation. Free access is now had to the joint to permit of the removal of the capsule and cartilages.

This is a serious, technically difficult and laborious operation? Yes. It will never be a routine procedure, as the subjects in which the disaster occurs are frequently in condition not favorable to surgical measures. Yet in many this open treatment may be of great value, and probably particularly so in those comparatively young men in whom a fractured hip followed soon by a Charcot joint may be the initial symptom of tabes. The selection of proper cases for the operation will always require careful thought. If ankylosed joints can be secured, results will be ideal. However, this method of surgical treatment is but in its infancy, and may be greatly modified by reports of future operated cases.

Case Report.—Mr. J. R. D., age 48, referred by Dr. B. Bakewell on July 14, 1912. He has had tabes dorsalis for several years, wears a brace support for a Charcot knee (right), has abdominal crises at intervals. On May 17th he stumbled in a hallway and fell to floor, striking on left hip; was able to walk to room with assistance, has not been out of bed or wheel chair since. He had no pain at time of injury and has had none since.

Examination found left leg $1\frac{1}{2}$ inches shorter than right (not accurate, due to distortion of right knee), and a firm massive enlargement of left hip. There was no pain on manipulation, but considerable limitation of motion. Skiagraph gave no valuable information except that irregular bony mass seemed to extend high toward crest of ileum—no fracture shown or outline of bones.

Condition was explained to patient who was depressed and did not care to live if he could not get about again. He was told that condition in

joint was not wholly clear, that only through operation could there be a possibility of his walking, but that his general condition was not favorable to operation. He took the matter under advisement and six weeks later elected to be operated upon. Operation was performed on August 27th. Incision was U shaped—great trochanter could not be found—a thick wall of bone extending from well down on shaft of femur to above acetabular rim was encountered—could not get around it—the adjacent muscles seemed infiltrated with bone. The wall was chiseled through—it was one-half inch thick and it opened into a cavity containing about two quarts of gray colored fluid. The internal wall of the cavity was thick irregular bone, very deeply placed in the inner side of the thigh. More of the outer wall was chiseled away and it was found that an intra-capsular fracture had occurred close to the trochanter and that the lower fragment carrying the trochanter had been displaced upward. This fragment was attached on the inside to the bony wall and when chiseled away could not be displaced downward. The fracture surface was covered with structure resembling cartilage. The upper fragment was displaced inward, was covered almost entirely with a soft cartilaginous material, and appeared almost as if fused into the wall of the capsule. The acetabulum could not be seen, but the sensation given to the fingers was that the head of the femur was softened and displaced on to the rim.

It was impossible to chisel away the bony capsule and remove the cartilage—the upper fragment was chiseled free and cartilage excised, the trochanter and about one-inch of the shaft removed, permitting the two fragments to be brought together, nailed and wired. Wound was closed. Patient regained consciousness, but died a few hours later.

This case is of value in pointing the way to achievement of the ideal result aimed at. Arthrodesis must be done in the very early evolution of a Charcot joint, long before there is much deposit of bone in the capsule.

THE MÉNIÈRE SYMPTOM-COMPLEX. A CLINICAL REVIEW.*

By HILL HASTINGS, M. D., Los Angeles.

I wish to present to you some case-records of labyrinthine affections in which the Ménière symptom-complex occurred, to discuss those of special interest and to invite your discussion of the subject. I regret that I cannot hope to bring before you any new facts, nor do I presume to attempt a classification of non-suppurative labyrinthine affections.

The study of non-suppurative affections of the labyrinth has lagged somewhat in comparison with that of labyrinthitis, secondary to middle-ear suppurative. There are two reasons why this should be true. Firstly, suppuration of the labyrinth has offered a field wherein the clinical findings can often be verified by operation. Secondly, labyrinthine suppuration is not infrequently the cause of death. Autopsies are, therefore, frequently obtained. On the other hand, it is an exceedingly rare event to be able to verify by autopsy one's clinical observations in non-suppurative affections of the labyrinth, death having resulted from other causes remotely related to the ear affection. For these reasons it is incumbent upon us as clinicians to review our past clinical experience, readjust our

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

methods of examination in accordance with recent scientific investigations, and thus do what we can to illuminate by clinical experience the still dark portion of the ear. One must often regret that the hidden nerve-field of the ear can not be seen by the otologist as is the fundus of the eye by the ophthalmologist.

I have recently had occasion to review 147 of my own records of non-suppurative cases in which the functional tests showed involvement of the auditory nerve apparatus. Seventy-four cases (about 50 per cent.) were without definite middle-ear signs or symptoms. The remainder, 73 cases, showed signs of labyrinthine deafness classified as follows: In otosclerosis, 37 cases; in chronic catarrhal otitis media, 23 cases; in tuberculosis of the ear, 13 cases. (Tubercular cases are included because the labyrinthine destruction did not follow the usual course found secondary to middle-ear abscess.)

Of the 74 labyrinthine cases (not secondary to middle-ear disease), 20 (27 per cent.) presented Ménière's symptoms. In eight cases the dizzy spells were of the apoplectic form.

The term "Ménière's Disease" has been rather loosely applied. The classical case, reported by Ménière in 1861, served to direct attention to the anatomical seat of a diseased condition that caused a characteristic combination of symptoms—deafness and dizziness, with nausea or vomiting. Ménière's interpretation of his findings in this case has been questioned. The hemorrhagic exudate, which he found in the labyrinth, could not in itself explain the cause of death. The patient, a girl of 18 or 19, died in five days, and the autopsy showed no middle-ear suppuration and no suppurative intracranial lesion. Bezold believed that the case was one, not of hemorrhage in the labyrinth, but of epidemic cerebro-spinal meningitis, with extension to the internal ear—a sporadic case in which the meningeal condition was overlooked. While this is the most plausible explanation of Ménière's case, *the term "Ménière's Disease" has been generally applied to non-suppurative affections of the labyrinth, or auditory nerve apparatus, in which Ménière's symptom-complex occurs. And Ménière restricted the classification to cases in which nerve deafness and not middle-ear deafness is found.*

Cases presenting Ménière's symptom-complex as a rule result from (A) diseased conditions of the blood vessels supplying the labyrinth, or (B) disease of the eighth nerve, including its end organs in the labyrinth. From a therapeutic viewpoint cases of Ménière's disease properly belong to the general practitioner or to the neurologist.

(A) Cases of the vascular class include (1) hemorrhagic or (2) serous exudates in the labyrinth; (3) embolism of the internal auditory artery or its branches (the terminal arteries are end-arteries like those of the brain¹) (4) embolism (5) arterio-sclerosis (responsible for sudden anemia and possibly for nerve atrophy) (6) aneurysmal pressure on the nerve (7) leukaemia (probably responsible for hemorrhagic exudates or nerve impoverishment).

(B) Cases due primarily to neuritis, include:

(1) Toxic neuritis (salvarsan, alcohol, quinine,

etc.) (2) infectious neuritis (syphilis, mumps, influenza, typhoid, tuberculosis, cerebro spinal meningitis, diabetes) (3) tumors of the 8th nerve itself and tumors pressing upon the 8th nerve (cerebello-pontine angle) (other nerves frequently affected at the same time) (4) meningitis with adhesions (other nerves frequently affected).

CASE REPORTS.

A Case of Ménière's Disease, Apoplectic Form, Occurring During Childbirth.—Mrs. W., age 38, referred from San Diego, on account of deafness in the right ear. The deafness was noticed after the birth of her last child, six months ago. Had never had any deafness or other ear trouble prior to that time. The labor was difficult—on coming out from the anesthetic she noticed great dizziness, nausea and vomiting. She did not attach any special significance to the symptoms; had never had similar experience in previous labors (has three healthy children). The dizziness continued two or three days, then subsided. Deafness was noticed on lying on her left ear. My examination showed complete nerve deafness. Weber to the good ear; bone conduction decreased; absolute deafness to whisper, speech, C to c₁ forks and to Galton whistle.

The etiological relation to the labor, in this case, and the sudden onset, would indicate a hemorrhage or embolism of the cochlear branch of the artery. A toxic neuritis would be also a possible explanation. Lecompte¹⁴ reports a similar case occurring in childbirth. H. Knapp¹⁰ reports a similar case after miscarriage.

A Case of Ménière's Disease, Apoplectic Form, Atrophy of the Cochlear Nerve; No Permanent Injury to the Vestibular Nerve.—Miss S., age 27, referred October 29, 1912, on account of deafness in right ear. Two months ago, while making a purchase in a drug store, suddenly noticed a queer buzzing in the ear and sudden dizziness; had to "grab the counter to keep from falling;" did not lose consciousness; had to lie down; a doctor was called, said she had a "slight stroke." She was able to walk with help to a taxicab and went home; vomited in an hour and off and on all day. After a day or two these symptoms passed off, but noticed she was deaf. She did not have any headaches or fever; the attack was not at the time of her menstrual flow, which had always been normal; her general health had been and is now excellent. Examination shows complete deafness in the right ear to acoumeter, speech, forks C to c₁ and to Galton; normal nystagmus reaction, caloric (hot and cold) and to turning.

I saw and re-examined this patient March 1, 1913, and found no changes from those above noted.

The suddenness of the attack; the complete deafness in the affected ear, without change in the vestibular reaction, and the absence of other signs or symptoms would indicate a hemorrhagic or serous exudate in the cochlea, resulting in complete atrophy of the organ of corti; or blocking of the cochlear branch of the artery by an embolus.

A Case of Ménière's Disease, Apoplectic Form; Partial Deafness; No Vestibular Changes.—C. E. S., age 36, referred October 20, 1909, by Dr. Bryant, Glendale, on account of repeated attacks of dizziness and noises in the ear. His trouble dates back one year; began while walking on the street; suddenly fell backward and to the right; did not lose consciousness; was dizzy and nauseated for only a few minutes. He had a similar attack nine months ago and another attack last night. Each attack is sudden, unheralded by any symptoms and not accompanied by loss of consciousness. He always falls to the right. His family physician could find no diseased condition.

He has never had syphilis; does not drink; general health is excellent.

Examination of ear, nose and throat is negative, except for bruised right auricle due to last night's fall. The hearing in the left ear is slightly impaired; watch 1 inch, ordinary conversation 8 feet, bone conduction reduced 20 seconds (c 128 d. v.). Air conduction c to c₄ reduced as follows: C—40 sec., c₁—30 sec., c₂—20 sec., c₃—30 sec., c₄—15 sec. The patient says all the tones in the left ear are sharp as compared to the right. November 3, 1909, patient returns, has had another attack, similar in every way to the others. The dizziness lasted not over a minute, "had to grab the counter in the store to keep from falling—felt as if some one had bowled me over."

April, 1913, Dr. Bryant reports that the patient is still living and in excellent health; has moved up North and has had only three attacks in the last two years. He states that the patient had a malarial history.

The cause in this case is, of course, obscure. The symptoms are suggestive of nerve irritation, from pressure periodically applied. The fact that the patient always fell to the right (the side of normal hearing), is contrary to my own experience in these cases. They have almost always fallen or had a tendency to fall to the diseased side.

A Case of Mild Form of Ménière's Disease, Probably Tobacco Neuritis.—Mr. W. F. S., age 48, referred by Dr. Ross Reed, Pasadena, July 3, 1912, on account of sudden deafness and fullness in right ear and dizziness. Trouble dates back one month; thought it was probably due to sudden blast from an automobile horn; has never had previous ear trouble; has not had a cold in the head; no catarrhal symptoms. General health good; denies syphilis; is married, has several children; does not drink, but has always smoked excessively, cigars and pipe; stopped smoking ten days ago.

The dizziness comes on at times; the spells are not severe enough to fall, but make him stagger; thinks the dizziness only comes when he moves his head; "the room seems to turn around."

Examination of the ear showed no middle-ear signs. Hearing in right ear considerably reduced; acoumeter, 10 inches; whisper ("four" and "six"), 6 inches and 18 inches respectively; conversation, 12 inches (dim); bone conduction reduced 15 seconds; Gelle positive; forks C to c₄ greatly reduced; c₂ and c₃ barely heard at all; c₄ poor; Galton whistle questionable (hears with left ear); vestibular reaction to cold water and to turning is normal both sides. Examination of the eyes (Dr. L. W. Mansur) was negative. After five months' treatment this patient improved somewhat. His last record (December 27, 1912), shows marked improvement in the hearing for forks and moderate improvement to conversation—whisper 6 feet; conversation 7 feet; forks c₁ poor (barely heard); C—25 sec.; c₂—20 sec.; c₃ normal; c₄ normal. He had stopped smoking and had lived an easy life. He took about 4 ounces of potassium iodid, in five-grain doses, three times a day. I never could see the slightest improvement after catheterization of the tubes, in fact, inflation seemed to make him temporarily more deaf.

A Case of Nerve Deafness (Both Ears). Following an Attack of "Grippe"; Dizziness and Vomiting.—Mrs. W., age 81 years, referred October 23, 1912, on account of deafness. Two years ago patient had a severe attack of "grippe"—confined to her bed for five months; no meningeal symptoms; towards the end of the illness had severe vomiting spells with dizziness, attributed to the stomach; remembers that there were some noises in the ear; did not have earache nor ear discharge; became profoundly deaf. When she was able to get out of bed, noticed she could not walk in a straight line. Examination showed both drum membranes normal. Hearing to acoumeter, whisper and speech

is gone; bone conduction (c 128 d. v.) reduced; forks C to c₄, negative in the right ear; in the left ear could hear c₃ fork alone (30 seconds); Galton not heard in either ear; vestibular reaction not tested.

J. M. Downey¹⁷ reports a case of labyrinthine deafness, due to "grippe," in which in addition to the cochlear nerve atrophy, there was loss of vestibular reaction.

Apoplectic Form of Ménière's Disease; Complete Deafness.—Mrs. A. S., age 33, referred April 21, 1910, by Dr. Pallette. Deafness in right ear dates back 15 years. There was no earache and no discharge; remembers considerable dizziness and noises in the ear and that the hearing was suddenly lost and has never changed. For about 10 years has had attacks of dizziness, nausea and vomiting, coming on suddenly, so severe has fallen several times; last attack one and one-half years ago. The attack would not last long and there was never any unconsciousness; attributed to the stomach.

Examination: Middle-ears normal. Left, hearing normal; absolute deafness in the right ear to speech and all forks (C to c₄); Galton questionable. (Hears with good ear.)

In this case the persistence of the attacks of dizziness, severe and sudden, over such a long period of time, is noteworthy.

A Case of Sudden Deafness, Dizziness and Vomiting.—C. F., age 62, referred by Dr. Bancroft, on account of deafness (left ear) of four days' duration. The deafness came on suddenly and without apparent cause. Noticed a "feeling of fullness in the ear and got very dizzy, had to lie down, did not fall, was nauseated and vomited." Did not have a cold; was not sick. Deafness in the right ear for years.

Examination: Left ear, drum membrane thin, translucent, good mobility; no signs of middle-ear inflammation. Hearing, acoumeter 1 inch; whisper, 12 inches; speech, 2 feet; Rinne, positive; bone conduction reduced 25 seconds (C 128 fork), c reduced 15 seconds; c₁ fair; c₂ fair; c₃ fair; c₄ almost normal; Galton heard up to 25; vestibular reaction normal in both ears.

The age in this case would indicate a vascular change in the labyrinth, due likely to arterio-sclerosis, and producing sudden anemia.

Sudden and Complete Nerve Deafness; Partial Restoration: Anemia (?)—Mr. H. S., age 57, referred April 30, 1910, from San Diego, by Dr. Fry. Complaint: Buzzing in both ears and deafness. Onset, four days ago, attributed to exposure to strong east wind and to removal of a heavy beard; thinks he caught cold, but has no signs of a recent cold in the nose and no middle-ear signs. Has always had good hearing in the right ear, but some deafness in the left ear for years. His hearing tests show complete absence of hearing in right ear to acoumeter, speech, and to forks C to c₄, and to Galton. In the left ear hearing greatly reduced; acoumeter one-half inch, whisper 5 inches, speech 3 feet; forks, C—20 seconds; c₁ good; c₂ good; c₃ good; c₄ not heard; Galton not heard; vestibular reaction, through turning, equal on each side, 20 seconds duration.

May the 4th (four days after my first examination), I was surprised to find that there was a return of hearing in the right ear, acoumeter, negative; speech, 6 inches; C fork heard well; c₁, c₂ and c₃ fairly well heard, reduced about 20 seconds; c₄ not heard at all. The patient left for England. I referred him to an otologist in London. I never heard from this case. The complete deafness, sudden onset, and partial restoration of hearing, together with the age of the patient and hard radial arteries, indicated vascular disturbances in the labyrinthine vessels, possibly local anemia of the cochlea.

Richard Lake¹⁵ reports several interesting cases of vertigo and deafness due to arterio-sclerosis.

A Case of Nerve Deafness; Apoplectic Form of Ménière's Disease; Ocular Paralysis.—E. P. M., age 55, a clinic patient, came to me first in November, 1904, right ear deafness noticed three years before, came on suddenly, ear felt stuffed up with hissing noise in ear; no pain; no discharge; was working at his trade (blacksmith), but deafness was not apparently caused by any sudden noise or blow on the ear, no headaches; has been completely deaf in right ear since. Dizziness began six months ago, off and on, mild at first, but soon, after one day, fell down unconscious for a few seconds; got up and was ashamed for fear of being thought to be drunk (patient never drinks, not a glass of beer in two months on an average). In a week or two had another attack preceded by a trembling; since then has had three or four attacks, but never quite lost consciousness. Last attack yesterday, preceded by increase in dizziness, but no other prodromic symptoms. Double vision; first noticed blurring and over-lapping of images about 17 years ago, gradually got worse and for past five years has been severe, has to use a ground glass on left eye to enable to walk (consulted Dr. Pardee, San Francisco, who told him the nerve in the left eye was affected).

Previous history: No illness since childhood; denies syphilis; general health is good; is married, has seven children.

Examination: Middle-ear condition is practically normal both sides. Hearing, complete deafness in right ear for all sounds. In this case we have a record of ocular paralysis of 17 years' duration, while the 8th nerve became affected only three years ago.

It has been my privilege recently to see at autopsy a brain from a case of this kind. The patient, a woman, age 50, had suffered for years with disturbances of the 3rd, 5th and 6th nerves. The vessels at the base of the brain showed multiple aneurysmal dilatations, and marked atheromatous changes. Death had resulted from rupture of one of the aneurysms. The brain itself was normal. This patient had suffered from ocular paralysis for years. Diagnosis made only at autopsy.

A Case of Deafness and Dizziness, due to "Nervous Prostration," Deafness Almost Complete.—Mrs. B., age 52, came to my office October, 1912. Almost two years ago had a vomiting spell; deafness dates from that time. After this spell had regular "nervous prostration"—had been very nervous ever since—the last two months before coming to me patient had been getting better. After this spell there were many noises in the right ear—severe noises. Following this attack was sick in bed six weeks, was dizzy and had a tendency to fall to the right. Had some slight confusion in memory. Had no difficulty in swallowing.

Examination: Right ear drum dull and slightly retracted, but not sufficient to account for degree of deafness. Left ear—good glistening, large calcareous deposit below, but otherwise normal. Throat in good condition. Tube opened freely and drum membrane vibrated freely, if anything a little stiff.

It is noteworthy in these cases of unilateral nerve involvement, with vestibular irritation, that the tendency is to fall toward the affected side.

A Case of Ménière's Disease, Apoplectic Form; Cochlear Nerve Atrophy.—Mrs. H., age 50, referred March 21, 1913, by Dr. A. L. Macleish, on account of deafness, left ear. Ear trouble dates back five weeks—began with dizziness, nausea and vomiting; attributed to the stomach; was so dizzy she had to go to bed; whenever she raised up would fall forward and to the left. Dizziness and nausea lasted three days. No earache; no discharge; no fever. One year ago, after "grippe," had some stuffiness in the same ear, relieved by two or three inflations. Is positive her hearing was acute up to this sudden attack five weeks ago. Patient has been out of bed the past two weeks; is weak and uncertain in her gait, but the dizzi-

ness has gone. Examination of the eyes (by Dr. A. L. Macleish) shows glaucoma, but no ocular paralysis. Blood examination (by Dr. Walter Brem) is negative; Wassermann reaction is negative. Aural examination, left drum membrane practically normal; completely deaf to acoumeter; whisper; conversation; all forks, C to c_4 , and to Galton. Caloric reaction (left) quickly developed (cold water, 66 degrees, one-half quart in left ear as against one quart in right ear); reaction nystagmus well marked, lasted thirty seconds and accompanied by considerable nausea.

It was impossible to explain the etiology in this case. Syphilis and leukemia were excluded. The patient left for her home in the East, referred to her former consultant, Dr. Charles H. Beard, of Chicago.

Spaulding¹⁶ has recently reported a similar case from supposed labyrinthine effusion, which he considers similar to iritis serosa or episcleritis.

A Case of Nerve Deafness Associated with "Nervous Prostration"; Dizziness.—Mr. M. E. J., age 52, referred January 20, 1913, by Dr. Robert Lewis, Jr., New York. Has come to California for his health. No organic disease has been found, but has had a general nervous breakdown from long period of work as railroad man. Denies syphilis. Wassermann reaction (taken at request of Dr. Lewis), was negative. Deafness has been marked of late; rapidly grown worse in the right ear; almost complete deafness in the left ear. Has frequent dizzy spells, attributed to constipation; thinks he always tends to fall backward during the spells, "room seems to be turning around." Never any headache.

Examination: Left membrane somewhat retracted, otherwise normal; right membrane slightly retracted. Hearing (right ear), acoumeter, 1 inch; whisper, 3 feet; speech, 2 feet (dim); Rinne, positive, forks C to c_4 reduced 25 to 40 seconds; Galton heard up to 45. Hearing, left ear, absolute deafness to whisper; conversation and all forks, C to c_4 , except c_4 , which is faintly heard; Galton heard up to 40. Vestibular reaction is normal and equal both sides.

A Case of Atrophy of Both Cochlear Nerves; History of Hemorrhages and Dizziness.—Mrs. F. R., age 52, referred from Pomona, December 19, 1910, on account of deafness both ears. Right ear had been deaf for five years. Left ear suddenly became deaf one month ago. At present unable to hear conversation in either ear. Right side deafness began five years ago with a severe attack of dizziness and general exhaustion. Was confined to her bed for six weeks. Vomited blood and had hemorrhages from the bowels off and on for two or three months—considerable prostration. (Unable to secure any opinion as to the nature of the disease). From this attack right ear was rendered absolutely deaf, but could hear well with left ear until one month ago. Has had no earache or ear discharge and nothing to account for the sudden deafness. Dizziness during the first attack was so severe had to sit down to keep from falling.

Examination: Right drum membrane dull, slight retraction, otherwise negative. Left, the same. Hearing entirely gone in right ear, to watch, acoumeter, whisper, speech, and all forks; bone conduction (c —128) reduced to 20 seconds. Hearing left ear also entirely destroyed, except for the c —128 fork, which is heard about 20 seconds. Galton not heard in either ear. Pupils react normally to light and accommodation. No paralysis of the 4th, 5th, 6th or 7th nerve. Ears had been inflated for a month without any improvement in the hearing. Tube was open and dry and no middle-ear signs to account for the deafness. Patient was married and had several children; was not questioned as to specific history.

The peculiar attack in which there was hemorrhage from the bowels and vomiting of blood for two or three months might have a bearing on the etiology of this case. Patient was treated in an-

other part of the country. If a careful diagnosis had been made at the time of the hemorrhage the cause for the nerve atrophy might have been found.

ETIOLOGY.

As to neuritis of the auditory nerve some interesting facts are established. Neuritis probably occurs more frequently than one would think and is more easily overlooked. Wittmaack¹ states that "the cochlear branch with its associated ganglion is imbedded in an unyielding bony capsule, partly surrounded by broad lymphatic spaces"; that "the blood vessels are end arteries; that the ganglion cells are smaller than all other ganglion cells in the vertebrates; that moreover, they are bipolar and possess medullary membranes; that these anatomical relations show the elective vulnerability of the cochlear nerve."

Paul Manasse² in 31 cases of 8th nerve deafness found that the cochlear branch alone was affected in 24 cases. Wittmaack states, "It is not strange that a particular group of nerve fibres should be affected. This can be observed in other nerves, i. e., the recurrent laryngeal nerve, also the optic nerve—as in tobacco amblyopia; also in neuritis from lead poisoning." So with 8th nerve disease the cochlear branch alone is often affected.

Wittmaack states, "It is presumable that in the labyrinth pathological processes generally occur in the form of small morbid foci, in the form of small hemorrhages, or inflammatory exudates, or infiltrates, situated within the delicate membranous labyrinth. From many of the autopsy reports of cases diagnosed 'Ménière's' it seems to me that a serous exudate or a sudden disturbance in the lymphatic circulation may have produced the symptoms." (Case XI may be explained in this way.)

Arterio-sclerosis may produce nerve atrophy through disturbance in the nutrition of the nerve. Atrophy and neuritis cannot be differentiated clinically. One fact stands out prominently, namely, that while optic neuritis and atrophy can be diagnosed objectively, auditory neuritis and atrophy can only be diagnosed during the life of the patient by testing the cochlear vestibular nerves. That the clinical findings in such cases point to underlying conditions of grave concern to the patient, should stimulate us to examine our ear cases most carefully.

Reports in the last year or two, of neuritis, occurring in syphilitics, after salvarsan injections, show the auditory nerve affected about twice as often as the optic nerve. As to whether the syphilitic virus or the salvarsan is responsible for the neuritis cases, it is worth mentioning that Prof. Alexander in six years prior to the advent of salvarsan observed 68 cases of lues of the ear; in only 12 cases symptoms appeared in the early stage (3rd to 6th month); whereas Prof. Finger in six months had as many cases after salvarsan treatment. Alexander, therefore, concluded that there must be an etiological relation in 8th nerve neuritis to salvarsan injections.

A large number of reports are being made of neuro-recurrence after salvarsan injections. For

example: Duel (Boston meeting International Otological Congress, August, 1912), stated that he had seen three cases lately of 8th nerve neuritis after salvarsan injections—all within the first two months of the specific infection—an occurrence that he had not met with in an experience of fifteen years. He mentions that Bernario collected 14,000 cases treated by salvarsan, in which 126 cases of neuro-recurrence occurred. Of the 126 cases, 51 showed 8th nerve involvement.

THE THERAPY OF MENIERE'S DISEASE.

The therapeutic measures advocated in cases of Ménière's disease have been many and of remarkable variety.

Parry³ and⁹ advocated the use of a seton placed in a fold of tissues of the neck at the base of the skull.

Blake and Putnam^{5, 6} and⁷, following Babinsky, used lumbar puncture with improvement in some cases. Dundas Grant⁴, Bradley¹¹ and others following Charcot, advised use of quinine in Ménière's disease. The use of pilocarpine, potassium iodide, complete body rest, depletion by sweating, and cathartics, is rational and advised by many authorities. The use of vaccines and bacterins, as reported by one observer (Sherman⁸) seems irrational and his results not conclusive.

Where the labyrinth tests show complete nerve deafness of long duration, atrophy of the nerve has taken place, and treatment would, of course, be of no value in clearing up the condition; however, as the other cochlear nerve occasionally becomes affected it is wise to attempt to ward off trouble by using those therapeutic measures applicable to the particular case. In acute cases during the course of syphilis specific treatment is, of course, to be instituted. As to whether or not salvarsan should be used is too large a question to be discussed in this paper. It seems to me that the answer to the question largely depends upon whether the threatened damage from the specific infection is great enough to warrant running the possible risk of the toxic damage from salvarsan.

In an acute case of Ménière's disease, not specific in origin, a search should be made for the underlying cause, such as arterio-sclerosis, or endocarditis (from which a vegetation might have been broken off into the blood stream and lodged in the labyrinthine artery); or for some of the diseased blood conditions, as pernicious anemia, leukemia, etc.; or diabetes, nephritis, etc. As the treatment depends largely on treating the underlying condition, the otologist in most cases likely would best serve the patient by referring him to a good internist or neurologist, being content with pointing out the nerve change that his examination disclosed.

REFERENCES.

1. Wittmaack—On vertigo and disturbances of equilibrium in non-suppurative diseases of the internal ear. *Arch. Otol.*, N. Y., 1907, xxxvi, 461-476.
2. Manasse—*Arch. Otol.*, Oct., 1907.
3. Parry, T. W.—On the treatment of Ménière's disease and Ménière's symptoms by seton. *Brit. Med. Journ.*, 1907, ii, 83.
4. Grant, D.—Two cases of aural vertigo treated by small doses of quinine. *Polyclin.*, Lond., 1905, ix, 160.
5. Putnam, J. J.—The value of lumbar puncture in the treatment of aural vertigo. *Tr. Amer. Laryng., Rhin. & Otol. Soc.*, 1911, xvii, 317, also, *Bost. M. & S. Journ.*, 1911, clxv, 472.

6. Blake, C. J.—Considerations of the mechanisms of pressure in the production of vertigo and report of cases. *Bost. M. & S. Journ.*, 1911, clxv, 469.
7. Putnam, J. J. & Blake, C. J.—The Babinski treatment of aural vertigo by lumbar puncture. *Journ. Nerv. & Ment. Diss.*, 1911, xxxviii, 540-547.
8. Sherman, G. H.—Some experience with bacterins in the treatment of aural vertigo. *Am. Med.*, 1912, vii, 431.
9. Parry, T. W.—Case of paroxysmal labyrinthine vertigo associated with special ocular symptoms and alleviated by seton. *Lancet*, 1904, i, 649-651.
10. Knapp, H.—Case of apoplectic form of Ménière's disease after miscarriage. *Tr. Am. Otol. Soc.*, 1905, ix, 150.
11. Bradley, J. M.—Treatment of Ménière's disease, with report of a case. *Therap. Gaz.*, 1903, xix, 660-662.
12. Beck, O.—Syphilis, the cause of isolated retro-labyrinthian vestibulum diseases. *Monatschr. f. Ohrenh.*, xiv, 1911, 505.
13. Beck, O.—Vertigo and disturbances of the equilibrium in recent secondary syphilis. *Laryngoscope*, xxi, 1911, 1056.
14. LeCompte—*Boston Med. & Surg.*, vol. cliii, No. 14.
15. Lake, Richard—*Lancet*, Dec. 14, 1912.
16. Spalding, James A.—Sudden, total and permanent deafness in one ear from supposed labyrinthine effusion, followed four years later by similar conditions in the other ear. *Annals of O. R. & L.*, Dec., 1912.
17. Downey, J. M.—*Am. Med.*, 1911, October.

MODERN THERAPY OF SYPHILIS.*

By VICTOR VECKI, M. D., San Francisco.

Physicians advanced in years, successful in their profession and having acquired the self-reliance which real or fancied experience gives, can be divided into two classes: the one composed of those who are afraid of the epithet "old fogey," and the other of those who are not.

After the first experiences with the newer additions to the diagnosis and therapy of syphilis many an older syphilologist wished he had remained an old fogey. "Our syphilitics," they reasoned, "were easy to handle, were our most grateful patients, intermittent and sufficiently prolonged treatment was invariably followed by success, the march of the disease could nearly always be predicted, accidents were seldom, catastrophes almost never happened, and where are we now? Chaos reigns."

Many a one returned to his old, trusted and easy methods, and when Corbus, at the 1912 meeting of the Section on Genito-Urinary diseases of the American Medical Association at Atlantic City, promulgated the new truth that treatment of the syphilitic should be continued vigorously during the negative phase of the Wassermann reaction if we wish for a permanent result, then not a few asked themselves: "What do we need the Wassermann at all, when we know that we must treat our patient when the reaction is positive, and now we are told we must treat him also when it is negative?"

Unfortunately things are not so simple as all this reasoning, and the Wassermann reaction has come to stay until supplanted by a better one, and though an experienced syphilologist may not need it so often as various laboratory owners think he does, he needs it very badly when he does.

While we are sure that the Wassermann reaction is something more than a symptom of syphilis, as some French authors claim, we are perfectly safe to regard it as such, and regulate our treatment accordingly, giving more energetic and longer treatment when we find the reaction positive, just as we would if skin or other symptoms were present.

One of the great merits of the Wassermann re-

action is that, while formerly the opinions of various authorities in regard to the influence of alcohol upon syphilis were different, there can be no doubt now that syphilitics should abstain totally. And to think that in former times one of the most popular antiluetic remedies, Van Swieten's liquor, was given in rum and water in order to disguise its objectionable taste!

After having relied for more than four centuries upon mercury as the mainstay in the treatment of syphilis, after every single remedy boosted from time to time as a more or less innoxious substitute was found useless or at least of very limited usefulness, and just when most syphilologists began to get really acquainted with mercury and the best ways of using it, when the prejudice against mercury amongst the laymen began to disappear, the great arcanum salvarsan, the catchy 606 was heralded *urbi et orbi*. Like a pack of hungry wolves the syphilitics and their doctors threw themselves upon it, every one of them striving for the "sterilisatio magna." But ah! Naught seemed to be just the way it should, and all those who expected so much were woefully disappointed, and the number of tragedies enacted, disasters caused, will never be known. On the contrary, the cautious ones, those who did not expect much, were highly gratified to have obtained a new weapon against syphilis, however limited its usefulness may be. We know at present some of the shortcomings of salvarsan, some of its dangers, and time will tell what it does in the long run.

Everything seemed to be very simple and most pleasant, first salvarsan, then a Wassermann to see the result. Wassermann negative, Eureka! But unmistakable symptoms shortly after such a decisive victory were a frequent and disagreeable surprise, then the old mainstay was rigged up again, and here we have the modern therapy of syphilis; the combined treatment. We must hope that the new combination will prove as useful, if not better, than the best methods used in the pre-salvarsanian time.

Even at this time we are justified to say: "Salvarsan and its improvement neosalvarsan may not be indicated so often as their German patentees may wish and claim, but when it is indicated we must be mighty glad to have it."

When we speak of modern therapy of syphilis we must not forget the most important progress made, which consists in the almost universal adoption of the method of employing the mercury in the form of intramuscular injections. While most syphilologists were compelled to admit long ago that the best results in the treatment of syphilis were being obtained by intramuscular injections of insoluble mercurial preparations, even Fournier, the father of the intermittent and prolonged treatment of syphilis, advised so late as 1905 against the injection treatment. We were told, and students were taught, that these injections, for various reasons, are not to be employed as a routine treatment, but only when rapid action is essential, as in the more malignant forms of the disease. And again I ask: "When is, in any case of syphilis, rapid action not essential, nay, imperative? and how are we to know it, and when any case of syphilis may become malig-

* Read before the Forty-Third Annual Meeting of the State Society, Oakland, April, 1913.

nant? Finally, why should we wait until a given case of syphilis does become malignant?"

We know now that intramuscular injections of insoluble mercurial salts can be given with absolute safety, that when the proper preparation is used in the right way, the patient is never in any danger, that even calomel, the most powerful of all mercurial compounds, can be injected, the disadvantage of causing abscesses avoided and the ensuing pain reduced to a tolerable minimum.

A further great progress in the syphilis-therapy is the adoption of highly concentrated mercurial preparations for intramuscular injections, and we are now in a position to use calomel and gray oil in a 40% suspension. It is almost self understood that the preparation must be of unquestionable purity and exactness, and the technic correct into the minutest detail. A special syringe must be used for these injections, because the ordinary sized syringes would not admit the exact measurement of the quantity to inject.

Zieler's recommendation to detach the syringe from the needle not only before the injection, to see if a blood vessel is entered, but also after the injection, in order to fill the syringe with air and then to press this air through the needle in situ, is excellent. After such a procedure, the needle is freed from any rests of the medicament which may ooze out when the needle is withdrawn, thus frequently irritating the puncture-canal and causing abscess formation.

Modern syphilologists have been taught by the intricacies of the blood-tests that there can be no routine treatment for syphilis. Every single case must be studied, and the treatment modified accordingly. And for this purpose the Wassermann and Noguchi tests are of inestimable value.

We read in older text-books that the patient must be treated several months after the secondary symptoms have disappeared. Gradually this time limit was extended to 22 months, two, three, four and five years. Now we know, however, that the syphilitic, in order to be absolutely safe, must be watched, and eventually treated all his life.

The question "When shall we permanently discontinue the treatment of any luetic patient?" can be answered only one way, and that is: "When we are sure that there are no more living spirocheta anywhere in his body." Now we must wait for the man to answer our question: how can we make sure that there are no living spirochetes in any patient's body?

While we know that there can be no immovable rules in the treatment of syphilis, there are a few facts established and well worth to be emphasized and considered in every single case.

The aborting of syphilis is possible in the primary and in the early secondary stage. Excision of the primary induration or its infiltration with mercury, and the energetic use of salvarsan may succeed in obtaining that great desideratum: the freeing of the system of all spirochetes. The excision should be done more frequently, and surely not only as Marchildon recommends in cases when the *Sp. pal.* are shown by dark stage examination and where, however, the Wassermann reaction is negative.

We do not know how spirochetes multiply, but know to our sorrow that they do multiply. Salvarsan destroys the spirochetes, but very seldom all of them. The surviving ones seem to multiply rapidly, therefore the short duration of the sometimes surprising results obtained.

In the tertiary stage of the disease and for parasyphilitic manifestations salvarsan is almost useless. Mercury works differently and seems to impair the vitality and the reproductiveness of the spirochetes.

Mercury is still in the ring, and the more I know of salvarsan the better I like hydrargirum.

Discussion.

Dr. W. V. Brem, Los Angeles: It is a true but trite saying that any system of treatment of syphilis will finally be judged by its effect on parasyphilitic disease and metasyphilitic diseases. We know that by the use of salvarsan or mercury we can obtain positive or negative tests in the blood serum and that with either we can control the lesions, but all of us who treat syphilis—especially the neurologist—frequently see cases that have had thorough treatment with mercury in the old days and yet have developed tabes, paresis or aneurysms. Is there any way we can tell which cases will develop parasyphilitic diseases, and if there is, can we do anything to prevent these manifestations?

During the past year I have examined 61 spinal fluids from 50 patients and have given to 12 patients with positive spinal fluids 63 doses of salvarsan.

One patient about a year ago had a nervous breakdown, which was diagnosed as neurasthenia, or nervous prostration due to overwork. He traveled, seeking to restore his health, but without beneficial results. An ordinary blood examination was found to be normal. Later it was learned that he had had gonorrhea 12 years previously and had taken pills for 2½ years without being told what they were for. There had never been any lesions of syphilis, and he had no idea that he might have it. He was then sent for a Wassermann test, which was strongly positive. On account of his neurasthenic symptoms, I recommended a test of the spinal fluid, which was much more strongly positive than the test in the blood serum. The pupils reacted to light and accommodation, the patella reflexes were exaggerated, the memory and judgment good.

Another patient had syphilis 12 years ago, but recently became anxious about his condition. The Wassermann test was faintly positive. I gave him two doses of salvarsan and the Wassermann test promptly became negative. He then went for several months without treatment, at the end of which time I did a spinal puncture and the Wassermann test was strongly positive in spite of the fact that there were no signs of tabes or paresis.

From these cases and other similar ones, I have come to the belief that everyone who has had syphilis should have an examination of the cerebrospinal fluid before being discharged as possibly cured. My conclusions from those cases of syphilis in which I have examined the cerebrospinal fluid as well as the blood serum, and from the result of the treatment of the parasyphilitic patients, I should like to read:

1. As a working hypothesis we may assume that syphilitic patients with positive spinal fluid reactions have the infection localized in the central nervous system and are candidates for the late syphilitic nervous phenomena. In support of this is the recent demonstration by Noguchi that spirochaetes are present, in a considerable percentage of

paresis cases, in the brain tissue. Noguchi demonstrated them in 12 cases of general paresis out of the 70 he examined.

2. Every patient should have a spinal fluid examination before being discharged as cured, and his spinal fluid and blood should be examined at intervals for a long time afterward.

3. There is no close relation between the Wassermann test in the blood serum and in the spinal fluid. Although we have done the tests in a considerable number of secondary and tertiary cases, most of the spinal fluids have been from parasyphilitic cases. We have frequently found the blood negative and the spinal fluid positive, and at times the reverse has been true. In making the test, we titrate the strength of the reaction so that results before and during treatment can be compared. We begin with small quantities of fluid and large quantities of complement, increasing the delicacy of the test until finally 1 cc. of fluid is used with 1 unit of complement (1 cc. of a 1-10 dilution of guinea pig serum). Nine tubes are used in each test. We demand that the test shall be negative in the most delicate tube before we think of suspending treatment.

4. With the Wassermann test positive in the spinal fluid the butyric acid test has also been positive. It may be relatively weaker or stronger, and it may be strongly positive when the Wassermann test is negative. The cell count also bears but little relation to either the Wassermann or butyric acid tests.

5. The positive Wassermann reaction in the spinal fluid is more difficult to get negative than that in the blood serum. With three intravenous injections of salvarsan together with mercury treatment, we have reduced the reaction on an average of about 50 per cent.

6. So far we have been able to reduce only one spinal fluid from a positive to a negative reaction. This was only weakly positive in the beginning, and it became negative to both the butyric acid and Wassermann tests after three intravenous injections of salvarsan. We then gave three more doses of salvarsan and mercury treatment before we felt that we might safely discontinue treatment. One intensely positive spinal fluid we reduced 80 per cent after 8 doses of salvarsan. The patient was a far advanced parietic when we began and he is now fairly normal.

7. We believe that mercury has but little effect upon tests in the spinal fluid, although we feel that it should be used vigorously. Our tendency is to shorten more and more the interval between injections of salvarsan.

In conclusion, I would say that the examination of the cerebrospinal fluid probably offers the greatest hope of determining beforehand which patients are candidates for the parasyphilitic nervous affections, and that the proper and persistent use of salvarsan, with mercury as an adjunct, offers great hope of preventing the development of these dreaded conditions.

Dr. Kaspar Pischel, San Francisco: I think Dr. Vecki's paper is of great value for the education of our patients. The public has gathered from magazines and newspapers that the diagnosis of syphilis is very simple and the treatment still simpler. They go to a Wassermann laboratory and if the test is negative it will be very difficult for a physician to convince the patient of the contrary. The patient has probably not heard of experiences, like the one I had the other day: the blood was taken from a patient by two first-class men at the same moment for the Wassermann test. The one reported negative and the other positive.

The treatment they think is simpler still. One injection of salvarsan and the patient expects a cure to be accomplished.

As soon as Dr. Vecki's paper is printed, I will

give it to every syphilitic patient of mine to read and think over.

Dr. Vecki, closing discussion: When I spoke about the Wassermann, I included the examination of the spinal fluid as well as of the blood.

LUETIN AS AN AID IN THE DIAGNOSIS OF SYPHILIS.*

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Correct diagnosis in medicine increases in importance with the rapid additions to our knowledge of the definite causes of disease and eradication by specific treatment. Uncertain and ambiguous terms in the signing of death certificates are rejected by statisticians, and if the matter of a correct diagnosis is important after the patient is dead, how much more important must it be while he is still living and capable of being restored to health. Each addition, then, to correct diagnosis should be welcomed and studied for its appropriate use. In diseases with protean manifestations, and long chronic course, with practically no self-limitation, all possible diagnostic aids are of distinct value. This is especially true in syphilis and the object of this paper is to take up the most recent practical aid in the diagnosis of this disease.

First: It will probably be of interest to review a little of the history of syphilis, in regard to its diagnosis.

Early medical authorities made some distinction between the three venereal diseases: chancroids, gonorrhea and syphilis; but with the advent of the virulent epidemic in Europe at the end of the 15th century the differential diagnosis of the three diseases became hopelessly mixed and remained so through many years of heated controversy and hard study.

The discovery of a "living contagium" in syphilis began as early as 1658 and discovery of a new cause came more frequently each year, until in 1905 it was stated that in the previous twenty-five years 125 causes of syphilis had been announced as discovered.

On the 17th of May, 1905, Schaudinn and Hoffman read a convincing paper before the Berlin Medical Society giving conclusive proof that a fine, delicately staining, spiral organism, was the cause of syphilis. This organism, they named *Spirocheta pallida*. Corroboratory reports of similar findings came in so fast from all over the world that by December of the same year the scientific world accepted this organism as the exciting factor of syphilis. Succeeding years have further confirmed this and the once mysterious cause of syphilis is now cultivated in artificial media and successful animal inoculations made (a).

This organism has led to the positive diagnosis of syphilis by finding it in the primary lesion, the secondary lesions, and in the case of the syphilitic fetus in large numbers in the liver and distributed throughout other tissues of the body (b).

Very recently, Noguchi has announced the finding of characteristic staining spirochetes in the cortex of the brain in paralytics, and in the spinal

* Read before the Northern District Medical Society at Woodland, Cal., June 18, 1913.

cord in cases of tabes. Only a certain percentage of cases showed the positive findings (c).

The difficulty of demonstrating this organism, however, and the confusion with similar organisms (d), has prevented this method of diagnosis from becoming more widely used. It is particularly applicable in diagnosing the primary lesion.

The next practical addition in the diagnosis of syphilis is known as the complement fixation or deviation test, and was brought out by Wassermann, Neisser and Bruck in 1908. Briefly, this is a chemical reaction between three chemico-biological reagents, viz: Antigen (extract of fetal syphilitic liver; or lipoidal substances); syphilitic serum, and complement (a body present in greater amount in

Very recently, a proposed control for the Wassermann reaction by the measurement of the amino-nitrogen of the blood serum (g).

The study of the whole Wassermann reaction and its modifications and side reactions tends to show the following:

1. That the Wassermann reaction and modifications are not absolutely specific for syphilis (h).

2. That the complement fixation reaction in syphilitic serums is not due to syphilitic antibodies in the blood, but upon admission to the blood of abnormal substance from the pathologically changed tissues (i).

We now come to a consideration of a more



Case No. 46. Sixth day.
Few hours after rupture of pustule.



Case No. 24. Fourth day.
Pustular type.

guinea-pig serum). Two other chemico-biological reagents act as indicators for the reaction between the other three: washed blood corpuscles, and sensitized serum for the particular class of corpuscles used.

This reaction has opened a new field of investigation in regard to the study of syphilitic serums and a vast amount of work has been done on them. Noguchi in studying the reaction simplified the technic, very considerably, and by changing the corpuscles used, from sheep to human, obtained a superior degree of constancy in the reaction (e). It has also been demonstrated that extracts other than syphilitic fetal liver extracts would act as very efficient antigen. Among other reactions made on syphilitic serums are:

The butyric acid reaction—Noguchi.

A long list of complement fixation tests with various antigens,

The cobra venom hemolysin test (f) and;

specific reaction of simple application. This is offered in Noguchi's "luetin." He defines this as follows:

"I have proposed the name Luetin for an emulsion or extract of pure cultures of *Treponema pallidum*, which is designed to be employed for obtaining, in suitable cases, a specific cutaneous reaction that may become a valuable diagnostic sign in certain stages or forms of syphilitic infection" (j).

The reaction with Luetin is dependent upon the state of allergy. This state is a specific symptomatic response on the part of the infected and sensitized organism to the parenteral reintroduction of the corresponding antigen (k).

In syphilis this response is, unfortunately for early diagnostic purposes, seldom obtained in the primary and secondary stages unless the patient has already been treated with the mercurial or arsenical preparations. The main response is obtained in the treated and late cases in which there are no symp-

toms or in which symptoms have recurred after a course of treatment. Late untreated cases also give the reaction (1).

This paper is to present a series of 52 cases injected with this preparation, most of the cases being controlled with the Wassermann reaction, Noguchi modification.

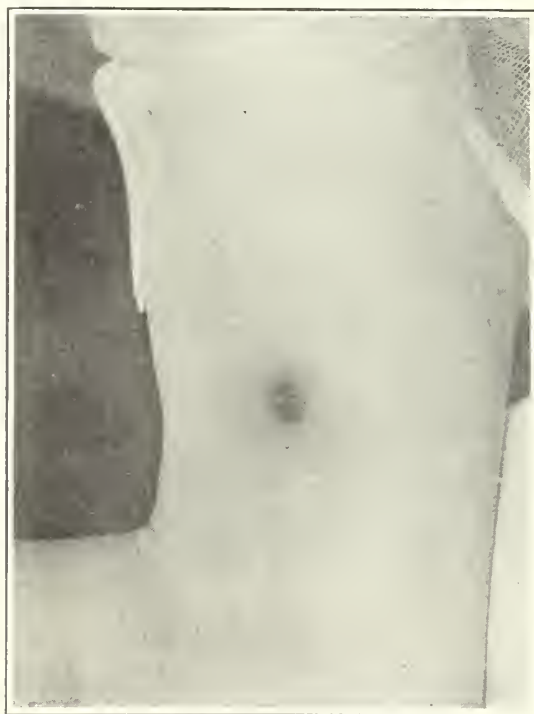
The luetin was obtained direct from Noguchi and contained six strains of *Spir. pallida*, which had been grown on artificial media in pure culture, then ground; sterilized with heat; and preserved with .5% tricresol. Equal parts of luetin and physiological salt solution were mixed just before use and one minim injected into the skin with a fine hypodermic needle. The skin was properly sterilized and dried before injection.

The successful injections raise a marked flat white papule at the site of the needle point. This pale swelling subsides in the course of twenty

The positive reactions.

- A. The papular form; this is a marked red papule with a zone of redness about it which makes its appearance in about twenty-four hours, slowly increasing for four or five days, then receding.
- B. The pustular form; this resembles the papular, excepting that it progresses to pustular formation and subsides more slowly.
- C. The torpid or retarded form; this reaction begins as a papule then subsides before the usual papular reaction. At the end of ten days or two weeks the injection site lights up and progresses to pustular formation of mild type.

In the cases reported in this series, no constitutional effects were observed, but close observations were not made on temperatures. Temperatures,



Case No. 32. Sixth day.
Papular type.



Case No. 44. Seventh Day.
Pustule intact.

minutes. No control injections were used as Noguchi states that he has decided to omit them, because his experience has shown them to be superfluous.

The reaction is determined as follows:

The negative reactions.

- A. Complete absorption and no erythema at the site of injection.
- B. A very small erythematous area at and around the point of injection but no induration. This disappears in four or five days. A slight yellowish pigmentation may remain for a short time.

diarrhea and symptom aggravations have been noted in other series.

A study of the tabulated cases tends to show the following:

1. That the reaction is of distinct value in the diagnosis of latent and treated syphilis.
2. That in some cases it is more sensitive than the serum reaction.
3. That it does not react in negative syphilitic infections.
4. That it is particularly useful in determining cures in conjunction with the serum reaction, with which it may be used as a control.

Case No.	Time Infected.	Treatment.	Present Symptoms.	Serum React.	Luetin.
1.	11 years.....	3 years.....	None.....	Negative.....	Negative.
2.	6 years (a).....	13 months.....	None.....	Negative.....	Negative.
3.	29 years (b).....	None.....	Tabes.....	Negative.....	Negative.
4.	5 years (c).....	Heavily 2 years.....	Crack corner mouth.....	Negative.....	Negative.
5.	Denied.....	None.....	Ulcer of tongue.....	Negative (d).....	Negative.
6.	4 years.....	3 years.....	Iritis (e).....	Negative.....	Negative.
7.	Congen.....	Irregular 22 years.....	Cerebral endart.....	Negative (f).....	Papular.
8.	No history.....	None.....	None.....	Negative.....	Negative.
9.	Denied.....	None.....	Spastic paralysis.....	Negative.....	Negative.
10.	17 years.....	Irregular.....	Leucoplakia.....	Positive.....	No report.
11.	15 years (g).....	6 months.....	Tabes.....	Negative.....	Negative.
12.	Chancroids.....	Local.....	Orchitis (h).....	Negative.....	Negative.
13.	Questioned.....	None.....	Gonorrhoea.....	Negative.....	Negative.
14.	Questioned.....	None.....	None.....	Negative.....	Negative.
15.	16 mos. chancroid.....	Local.....	Measles.....	Negative.....	Negative.
16.	Questioned.....	None.....	None.....	Negative.....	Negative.
17.	Uncertain.....	2 years.....	Eruption on nose.....	Negative (i).....	Negative.
18.	Denied.....	None.....	Tabetic symptoms.....	Negative (j).....	Negative.
19.	Questioned.....	None.....	Facial neuralgia.....	Negative.....	Negative.
20.	5 years.....	Heavily.....	None.....	Negative.....	Negative.
21.	6 years.....	1½ years.....	Tabetic symptoms.....	Faint positive.....	Papular.
22.	Not determined.....	Well treated.....	Tert. leg ulcer.....	Positive.....	Papular.
23.	Not determined.....	Being treated.....	Tert. lesion.....	Positive before.....	Papular.
24.	36 years.....	Moderate.....	Tabes.....	Weak positive (k).....	Pustular.
25.	Congen.....	Being treated.....	Teeth and eye.....	Weak positive.....	Papular.
26.	Not determined.....	Not determined.....	Not determined.....	Positive.....	Papular.
27.	Questioned.....	None.....	None.....	Negative.....	Negative.
28.	Few weeks.....	Being treated.....	Secondaries.....	Positive.....	Pustular.
29.	No history.....	None.....	Adenitis.....	Negative.....	Negative.
30.	20 years.....	"Cured".....	Ununited fracture.....	Positive.....	Pustular.
31.	18 years.....	Early heavy.....	None.....	Negative.....	Negative.
32.	20 years.....	Being treated.....	Tert. leg ulcer.....	Positive before.....	Papular.
33.	9 years.....	Irregular.....	Tert. nose lesion.....	Not taken (l).....	Torpid form.
34.	20 years.....	2 years.....	Tabes.....	Not taken.....	Papular.
35.	Denied.....	Not obtained.....	Tert. nose lesion.....	Not taken.....	Papular.
36.	Not determined.....	Being treated.....	Tert. lesions.....	Not taken.....	Pustular.
37.	5 years.....	Active and 606.....	None.....	Not taken.....	Papular.
38.	No history.....	None.....	Endometritis.....	Negative.....	Negative.
39.	No history.....	None.....	Neurasthenic.....	Negative.....	Negative.
40.	13 years.....	Irregular.....	Tert. leg lesions.....	Not taken.....	Papular (m)
41.	No history.....	None.....	None.....	Not taken.....	Negative.
42.	Not obtained.....	Not obtained.....	Scars and tert. ulcer.....	Not taken.....	Papular.
43.	4 months.....	Early, very active.....	None.....	Negative.....	Negative.
44.	20 years.....	Irregular.....	Gastric crises.....	Not taken.....	Pustular.
45.	34 years.....	Short time.....	Tabes.....	Not taken.....	Pustular.
46.	11 years.....	Hot Springs and Hg.....	Ulcerative rhinitis.....	Not taken.....	Pustular.
47.	No history.....	None.....	None.....	Not taken.....	Negative.
48.	No history.....	None.....	None.....	Not taken.....	Negative.
49.	No history.....	None.....	None.....	Not taken.....	Negative.
50.	20 years.....	3 years.....	Headache.....	Negative.....	Negative (n)
51.	No history.....	None.....	None.....	Not taken.....	Negative.
52.	Questioned.....	None.....	Vertigo.....	Negative.....	Negative.

5. That it may be successfully applied while the patient is under treatment.

6. That the failures in para-syphilitic cases suggest that there may be some other cause than syphilis for tabes and general paresis.

In this regard I would like to quote Robertson in the *Lancet*, 1912, who claims that syphilis is merely a predisposing cause for the para-syphilitic, central nervous diseases, because he has isolated a bacillus of the diphtheroid group; bacillus paralyticans from the GU tract and nasal mucosa of these cases. Cultures can also be obtained from the spinal fluid in some of the cases. Typical ataxia and paresis has been developed by him, with this organism, in a considerable number of rabbits. Early tabes has been improved by him with a vaccine treatment, and striking results claimed by the intra-spinal injection of an antiserum produced in sheep.

Reference Notes. Luetin as an Aid in the Diagnosis of Syphilis.

- (a) Direct Culture of *Treponema Pallidum*, pathogenic for monkeys; H. Noguchi. *Jour. of Exp. Med.*, Vol. XV, 1912.
- (b) Diagnosis and Treatment of Syphilis, Browning-McKenzie, 1912.
- (c) Presence of Spir. Pal. in Central Nervous System, Noguchi. *Munch. Med. Woch.*, Apr. 8, 1913.
- (d) Experimental Research in Syphilis, Noguchi, 1912.
- (e) Serum Diagnosis of Syphilis, 3rd Ed., Noguchi.
- (f) The Cobra Venom Haemolysin Test, Stone & Schottaedt. *Arch. of Int. Medicine*, 1912, x 8.
- (g) A Quantitative Chemical Reaction for the Control of Positive Wassermann Results, D. M. Kaplan. *N. Y. Med. Jour.*, June 7, 1913.
- (h) The Interpretation of the Results of the Wassermann Test, C. F. Craig. *Jour. A. M. A.*, Feb. 22, 1913.
- (i) Producing Complement Binding Reactions by the Addition of Chemical Substance to Normal Serum, E. Rominger. *Munch. Med. Woch.*, Apr. 22, 1913.
- (j) A Cutaneous Reaction in Syphilis, Noguchi. *Jour. Exp. Med.*, Vol. XV.
- (k) Infection and Immunity, Simon, 1912.
- (l) Serum Diagnosis of Syphilis, Noguchi. 3rd Ed.
- a. Infection very questionable.
- b. Diagnosed as chancroids and only treated locally, no symptoms ever noted until onset of tabes.
- c. Married 18 months before and has healthy infant 6 months old.
- d. Report from Lane Hospital, S. F.
- e. Had attacks of same type of iritis before syphilitic infection, two negative serum reactions one year apart, iritis responded to anti-rheumatic treatment.
- f. Three negative serum reactions. KI being administered at the time.
- g. Questionable syphilitic infection.
- h. Gave positive skin reaction to tuberculin. (Von Pirquet.)
- i. Two negative serum reactions. Very questionable infection.
- j. Complement fixation negative on both serum and spinal fluid. Moderate positive Butyric Acid reaction on spinal fluid.
- k. Reaction done with spinal fluid.
- l. 606 given intravenously, 6 months before.
- m. Sick with typhoid fever at the time of the reaction.
- n. History of sore not suggestive of chancre. Headaches not characteristic and not affected by energetic anti-syphilitic treatment.

Reagents used for the complement fixation test as follows (serum reaction):
 Human blood corpuscles.
 Fresh guinea-pig complement.
 Normal liver lipoids (insoluble acetone fraction).
 Anti-human rabbit amboceptor (paper strips).
 Suspect serum.

CHRONIC INTESTINAL AMEBIASIS, WITHOUT DYSENTERY.*

REPORT OF TWO CASES.

By R. S. CUMMINGS, M. D., Los Angeles.

My excuses for reporting the following cases are, 1st, the scarcity of literature concerning amebic infections without dysentery, and 2nd, to add my testimony to the efficacy of ipecac to rid the colon of amebas.

A short resumé of the history of the ameba might be appropriate. Lambe in 1859 was the first to observe an ameboid body in the discharges of a case of dysentery, Loesch of St. Petersburg in 1875 was probably the first to identify a true ameba in the stools of a dysentery patient. Koch in 1883 demonstrated the ameba in the sections of an ulcerated bowel, thus showing the relation between the parasite and the intestinal lesion. In 1886 Kartulius reported 150 cases from Egypt in which he found amebas. Osler in 1890 reported the first amebas found in this country, a little later Stengel and Musser reported several cases, as well as Dock at Galveston.

The earlier students recognized but one type of ameba termed *ameba coli*. Councilman and Lafleur suggested the term of *ameba dysenteriae*. In 1903, however, Schaudin classified amebas into *entameba histolitica*, pathogenic for man and cats, and *entameba coli* which is non-pathogenic. Viereck described another pathogenic form which he termed *entameba tetragena* because of four neuclei in the cysts. Recently, however, Darling seems to have proved that *entameba tetragena* are merely encysting forms of *entameba histolitica*.

While much has been written regarding amebic dysentery, little has been said concerning the infection without dysentery or with alternate constipation and diarrhea. Osler in his practice dismisses it with a paragraph. Brem and Zeiler give the best definite report of cases treated, seven in all, two of whom had no diarrhea. Simon mentions the constipation with occasional exacerbations of diarrhea in his series of cases. Tuttle in 1904 reports four cases having a colitis, malaise and asthenia, yet having no diarrhea. Anders and Rodman called attention to patients having the alternate constipation and diarrhea due to amebic infection.

In the treatment of amebic infections, many things have been used, the most common of which are rest and a nourishing diet, upon which Musgrave lays especial stress; colonic irrigations of quinine, thymol, silver nitrate, and ipecac solutions; irrigations of ice water as recommended by Tuttle, and injections of pure coal oil by which means Haines reports cures. Musgrave reports twelve patients free from amebas 20-90 days following the use of protoiodide of mercury. Deeks and Shaw recommend large doses of bismuth with which they claim good results. Thornburgh thinks the cases treated with ipecac relapse and cites eighteen cases cured with argyrol given as an enema in one to ten per cent. solutions. Ap-

pendicostomy in chronic infections is recommended especially by Anders and Rodman, Holt, Tuttle and Gant. Tuttle recommends formalin irrigations through the appendix.

While ipecac has been used for many years in small doses, it is only during the last few years that it has been systematically used in large doses (60-80 gr. per day), as recommended by Manson. The majority who have used ipecac thoroughly and systematically in large doses, as Simon, Dock, Brem and Zeiler, Freund, and others, report very favorable results, and are enthusiastic regarding it. Allan has recently apparently cured two patients by the hypodermic use of emetin hydrochloride.

The following are the records of the two patients who came under my observation:

On Sept. 23rd, 1911, Mrs. M., an American housewife, aged 40, was referred to me by Dr. Simpson of Long Beach. The complaint was weakness, nervousness, and constipation, with an occasional looseness of the bowels lasting for a day or two.

Both family and personal histories were unimportant.

Her trouble began 15 years ago, after moving from Louisiana to Texas. She had a prolonged attack of dysentery which was checked in a few months with difficulty, since which time she has never been real well. Seven years ago patient began to be badly constipated and one year later had a return of the dysentery for a short period. Three years ago she had another attack which was very severe and was difficult to check. Since has been very badly constipated, having to resort to laxatives most of the time. About once a month, however, the bowels would be very loose for a day, moving two or three times. For the past few years the patient has been very despondent, having endeavored to commit suicide at one time.

The examination was practically negative except that the abdomen showed slight tenderness upon deep pressure over McBurney's point. The blood showed the hemaglobin to be 90% (Talquist), reds 4,500,000, whites 8,000, and a normal differential count. In the stool were found many large quite motile amebas, each containing numerous large vacuoles. Flagellated monads were very numerous.

Treatment was begun on October 19th by administering twenty 3 gr. salol coated ipecac pills, following a fast of 12 hours. These were vomited up in one and a half hours with coating dissolved. The next day the same number were repeated with a half grain of morphine followed in one-half hour by one-quarter grain more. These were all vomited in two hours. Then salol coated capsules were tried but these were vomited seven hours later after the coating of some had been dissolved. The patient was nauseated for 48 hours following this.

After a few days' rest, following a cleansing enema, a starch enema was given containing 50 grains of ipecac. In two hours the patient began to vomit. This continued for two or three days accompanied with loose bowels. This was followed by an enema containing 90 grs. of ipecac. After two hours this was expelled followed by about 12 hours of vomiting. Two more enemas of 50 grs. each were given, both being followed by vomiting lasting from 12 to 36 hours. The patient became so weak that it was deemed best to stop treatment. On Nov. 30 no amebas were found, but on Dec. 4 there were very many present after a dose of magnesium sulphate. The patient, however, was feeling much better, having a fine appetite and had ceased to be so melancholy.

Believing that the patient was unable to withstand the absorption of but very small amounts

* Read before the Los Angeles County Medical Association on April 3, 1913.

of ipecac, we planned to inject a solution into the cecum, leaving it a certain length of time and then wash it out through the rectum by a normal salt solution. On Dec. 10th cecostomy was done by Dr. J. E. Colloran and a catheter inserted. The appendix, the lumen of which was obliterated at the base, was removed.

On the 23rd, three gallons normal salt were passed through the colon coming out a tube placed into the rectum.

On the 24th one gallon normal salt was passed through, followed by one pint starch solution in which four drachms of ipecac was suspended. This was immediately washed out by normal salt. The following day this was repeated, the ipecac solution remaining five minutes. The next day the same procedure was repeated, the ipecac remaining ten minutes. The following day, the 27th, this was repeated, the ipecac remaining fifteen minutes. One hour later nausea began. The bowels moved the following evening, but no amebas were seen. On the 28th the ipecac remained twenty minutes and the nausea was much worse with some vomiting. Dec. 29th no treatment was given, but nausea and some diarrhea continued. Dec. 30 four drachms of ipecac in starch was given, remaining for twenty-five minutes in the colon and then washed out. Nausea continued. Dec. 31st the same treatment was repeated, the nausea and some vomiting continuing for thirty-six hours, when it began to subside. Jan. 10th, 1912, patient began to feel fine. Dr. Walter V. Brem examined stool, finding flagellated monads but no amebas.

Jan. 13th stool again examined with same results. Jan. 20th, twenty days after last injection and twenty-four days after disappearance of amebas, Dr. Brem again examined the stool and no amebas were found. The following day Dr. Colloran closed the wound and beside a good deal of nausea the patient made an uneventful recovery, returning to her home in Texas on Feb. 8th. Since this time several communications have been received, the last one in Dec., 1912, one year after treatment, at which time the patient said she felt perfectly well, was working hard and was not at all nervous or weak. The bowels were quite regular and no periods of diarrhea had occurred.

My second case, Mr. R. C. P., came to me on Nov. 11, 1911, age 31, male, single, farmer. His complaint was weakness and indigestion. His family history was negative, also his personal history. He had lived in Idaho all his life except for a few weeks spent in Elgin, Oregon, one year previously.

His present trouble began two years previously when he had a severe cold and a diarrhea of two weeks' duration. Since has been growing a little weaker, and gradually losing in weight. Has been suffering with sour stomach, constipation with an occasional looseness of the bowels lasting for one or two days, loss of appetite and a great deal of gas on both stomach and bowels.

The physical examination revealed a patient very poorly nourished, rather pale, muddy sclerae, pale conjunctivae and an apparently normal thyroid; lungs showed a healed tuberculous lesion at both apices. The heart was normal and abdominal examination negative. The reflexes were normal, the urine examination was normal and the blood examination showed a condition of secondary anemia only. An examination of the stool revealed large very motile amebas containing numerous large vacuoles, and was full of flagellated monads.

On Nov. 25th, after fasting 12 hours, 20 three grains calomel coated pills were given. In two to three hours the patient vomited several times, throwing up possibly one-half of the ipecac. The following day 18 pills were given, followed by about the same amount of vomiting as the previous day. Sixteen three grain tablets were given

the next day and 14 the following with about the same amount of vomiting.

The following day, Nov. 29th, three grain tablets were given, two-thirds of which were vomited up. The patient had become so weak and the stomach so irritable, no more medicine was given for two days, when following a cleansing enema, an enema containing 60 grains of ipecac suspended in eight ounces of starch solution was given. This was followed by much tenesmus and diarrhea. Two days later, Dec. 2nd, another enema of 60 grains was given, followed by very little distress. Dec. 5th 20 three grain tablets were again given as patient felt much better and about a third of the ipecac was vomited. This was repeated the following day and again repeated the next day, when vomiting became severe again.

The stool was examined on Dec. 1st, six days after beginning treatment, and no amebas were found; again on Dec. 21st, two weeks after close of treatment, the examination showed no amebas but flagellated monads were present.

The patient was not seen again until March 2nd, when the stool after taking salts, showed no amebas or flagellated monads. At this time the symptoms had all disappeared and a gain of 24 pounds in weight had taken place.

From observing these two patients, my attention was called to the fact that in all cases of constipation in which there was a history of dysentery or diarrhea lasting several days at any period in their history to suspect amebic infection.

Also that probably some of the patients previously diagnosed as neurasthenics had a chronic amebic infection of the large intestine. These two patients had been so diagnosed before coming to me.

That when the colon is thoroughly irrigated with an ipecac solution, the amebas are destroyed. Whether this is due to direct contact of the ipecac with the amebas or is due to the absorption of emetin into the blood or both, has not been as yet definitely proven.

THE CUTANEOUS REACTION OF SYPHILIS —(LUETIN REACTION).*

(Third Communication.)

By JULIAN MAST WOLFSOHN, M. S., M. D., San Francisco, Assistant in Neurology, Stanford University Medical Department.

Syphilis, because of its polymorphous lesions, is one of the most difficult of diseases to accurately diagnose. In its latter stages it not only simulates other diseases, but in certain cases, no demonstrable lesions or physical signs can be found to aid us in making a diagnosis. In primary and secondary syphilis the treponema pallida can in most cases be demonstrated microscopically, so that our chief interest in this paper centers itself about the later stages of the disease where laboratory methods must needs be often employed to ascertain the presence or absence of syphilis.

Since the advent of the Wassermann reaction, a great many cases of syphilis have been correctly diagnosed which otherwise would have been relegated to the collection of medical enigmas. How many cases of gummata of the brain or meninges have been saved from needless operation by this laboratory reaction!

* Read before the San Francisco County Medical Society, April 8, 1913.

Even before the Wassermann reaction was discovered, scientists such as Neisser, Bruck, Wolff-Eisner, Tedeschi, Nobl, Cuiffo, Gauthier, Bertin and many others have tried to produce a cutaneous reaction for syphilis similar to the tuberculin skin reaction, by applying various extracts of syphilitic tissues to the skin of patients suspected of syphilis. But results from this procedure have been varied and unreliable, probably due to the contamination with secondary organisms and with tissue extracts which both dilute and render the syphilitic extract innocuous.

So soon as the *treponema pallidum* was discovered as the specific cause of syphilis, hope for a substance similar to tuberculin was renewed, and to this end many investigators bent every energy toward growing this organism. In 1911, Noguchi achieved this end. Not long after this he prepared an emulsion—which he named luetin, consisting of the pure cultures of several different strains of dead *spirocheta pallida* in the media on which they grow anaerobically, viz: ascitic fluid agar. (For details of the method of preparation of the luetin, the reader is referred to Noguchi's original article in the *Jour. Exp. Med.*, 1911, XIV, 99, or to my previous report in the *Johns Hopkins Hospital Bulletin*, August, 1912.)

The luetin when applied intradermically in certain syphilitics, produced a definite local reaction which was absent in cases which were non-syphilitic.

A control emulsion, which consists of the luetin minus the *spirocheta* is used as a check on the luetin injection, and is introduced in the same manner and at the same time as the luetin in another part of the body.

The full technic and method of administration of this test has been discussed in detail in a previous communication. Briefly stated, equal parts of the luetin and sterile normal salt solution are mixed and, in adults, 0.07 c.c. (.05 c.c. for children) of this mixture are injected intradermically with a very fine hypodermic needle into the left arm preferably over the biceps. Similarly, the control emulsion is prepared and injected into the right arm. Readings are made, when practical, every two or three days for four to five weeks when the reaction is negative. A positive reaction can be diagnosed at the end of 48-72 hours. It was found that marked local reactions occurred almost constantly when the luetin was injected subcutaneously so that now no readings are made in any case where the injection has been made too deep or where blood oozes from the injection site.

The normal or negative reaction: In a large number of diseases other than syphilis, there appeared shortly after the injection a slight erythematous area which, in some cases, soon disappeared, but, in others, increased in intensity so that by the second day there was a rather marked erythema, but never was any induration noted. This erythema began to recede in twenty-four hours, and by the third to fourth day nothing remained but a slight pigmentation.

The positive reaction can be divided into the

popular, vesicular, pustular, torpid and hemorrhagic forms.

The popular form consists of a definite indurated nodule with a more or less definite area of erythema surrounding it. This appears within twelve to twenty-four hours and usually increases in size and hardness until the third to fourth day and then regresses.

In many cases a few vesicles may be seen surmounting the papule. These finally coalesce and either disappear or progress into the pustular form. This variety is especially seen in the cases which present violent or extremely rapid reactions. It is also seen in this type over the site of injection of the control emulsion. The pustules usually burst, discharge their contents and then dry.

The torpid variety sometimes occurs in cases having had intensive anti-syphilitic treatment, and is especially seen in the cardiovascular complications of syphilis. Here the reaction is never very marked and usually appears at any time from the end of the first to the fifth week. In a few of these cases a large hemorrhagic pustule appeared two to three months after injection; discharged and then healed, leaving nothing but a pigmented area. Scar formation was never seen in any case tested.

Occasionally there is a constitutional reaction consisting of malaise, fever to 102°, nausea, diarrhea and tender axillary glands. These disappear within twenty-four hours as a rule and have never given rise to any alarm on the part of the patient or doctor.

The cause of the luetin reaction: The luetin reaction may be said to be due to a hypersensitivity of the tissues of the patient to the proteids of the *spirocheta pallida*—a condition called allergy—plus a susceptibility of the skin of syphilitics late in the disease to trauma—called *unstimmung*. In the majority of cases allergy is no doubt the prime factor in the causation of the reaction, but “*unstimmung*” is also to be reckoned with because of the many positive reactions over the control site of injection where no *spirocheta* are present. In view of this explanation one would not expect to find a positive reaction in primary or early untreated secondary syphilis.

Summary of the Syphilitics Tested.

Of eight cases of congenital syphilis, in which the Wassermann reaction was present in 100%, the luetin was present in but 75%. Antisyphilitic treatment had been instituted in these cases.

Primary Syphilis: The Wassermann and luetin tests were negative in one case of chancre of four days' standing (*spirochetæ pallida* expressed from the lesion in this case).

Three of five cases of secondary syphilis gave positive luetin reactions, while the Wassermann reaction was positive in all five. The cases giving the positive luetin tests were all being treated with intensive antiluetic medication.

In tertiary syphilis where the patients have usually been, or are being treated, the Wassermann reaction is not so reliable as in the earlier stages. In twenty-six of these cases the Wassermann reaction was positive in but 80%, while the luetin reaction was positive in 96%. Two of these cases

who had had energetic treatment showed positive reactions on the 10-12th day.

In latent syphilis because, clinically, data is lacking to make a positive diagnosis, and because the history of syphilis is usually lacking, we have to rely chiefly on the Wassermann reaction or upon the fact that if the patient is a woman, her children might show some taint of inherited syphilis. It is in this type of case that the luetin reaction is of extreme value—the luetin reaction was present in 100% of these cases—the Wassermann in but 64%. That is, the luetin reaction is not only positive in those cases of latent syphilis giving positive Wassermann reactions, but also in approximately 100% of the other cases of latent syphilis which were not brought to light by the Wassermann test.

By para-syphilis one means either the later syphilitic central nervous system affections, or the cardio-vascular complications of syphilis. Here, too, does the luetin reaction come to our aid. Twenty-two luetin and but sixteen Wassermann reactions were positive in twenty-five patients with cardio-vascular syphilis, and of fourteen tabetics 57% gave positive Wassermann and 92% gave positive luetin reactions.

100% of both the Wassermann and luetin reactions were positive in each of two cases of optic atrophy and tabo-paresis.

A cursory analysis of the above cases shows that the luetin reaction is constantly present in treated congenital and secondary syphilis and in the later stages of this disease. The Wassermann reaction in these cases is less constantly present. In untreated congenital and secondary syphilis the opposite condition holds true, i. e., the Wassermann reaction is positive oftener than the luetin. In other words, the luetin reaction may be said to be supplementary to the Wassermann test in these types of syphilis, and it is in this that the luetin will make a valuable addition to our laboratory diagnostic aids.

The results from over 900 tests made upon the syphilitic and the non-syphilitic patient seem to justify the conclusions that

- (1) The luetin reaction is specific for syphilis;
- (2) The luetin reaction is especially valuable in the later stages of syphilis;
- (3) Treated secondary and congenital syphilis is apt to show positive luetin reactions;
- (4) In any case of suspected syphilis, whether previously treated or not, a negative luetin reaction must be observed for at least four to five weeks so as not to overlook a delayed reaction.

Discussion.

Dr. R. L. Wilbur: I have watched a number of these tests and have taken a good deal of interest in this work; my conclusions are similar to those of Dr. Wolfsohn. For a time, until I realized the possible effect on the skin, "umstimmung," I was disturbed by the reaction of the controls, but one is soon able to make the necessary distinctions. I also agree with Dr. Wolfsohn that we have a very valuable aid in the luetin test, but it should not take the place of the Wassermann test. The two should be used side by side. In routine work it would be a mistake to depend only on the luetin test.

Major Roger Brooke: I have had a limited ex-

TABLE I.

Stage of Syphilis.	No. of cases.	Wassermann.	Luetin.	Control.	Delayed.
Congenital	8	100	6	0	0
Primary	1	0	0	0	0
Secondary	15	100	3	0	4
Tertiary	26	100	25	1	5
Latent	17	5	80	17	9
Parasymphilitic	43	6	64	100	12
Cardiovascular	25	9	22	3	9
Central nervous	16	16	22	14	9
System	18	8	13	9	5
Tabes Dorsalis	14	57	92	0	0
Tabo paresis	1	100	100	0	0
Optic Atrophy	2	100	100	0	0

perience in the use of luetin, but have found it quite satisfactory in those cases associated with a negative Wassermann. Since then I have used it in tertiary, latent and parasymphilitic cases. In this type of case I have found this reaction not only interesting but have gotten in many cases positive reactions when all other aids had been negative. I think that it should be used as a supplementary measure, but certainly in primary and parasymphilitic cases, particularly in those cases associated with a negative history, it is of great value.

Dr. H. C. Moffitt: Dr. Wolfsohn kindly asked me to discuss his demonstration to-night, but I told him that I preferred to wait. It is exceedingly important to have one's own clinical material before passing judgment on such questions.

As we use these convenient tests, we are, of course, liable to run away from the pure clinical examination, and trust a little too much to them to make the diagnosis for us. Although realizing how valuable these tests are, I would emphasize looking at a patient carefully clinically before they are made. We should not forget, in the positiveness we have in the tests, the value of the small stigmata we find in patients at the bedside. I have in mind particularly the examination of the pupils and eye grounds and the cardiovascular signs. It is true that we have been helped tremendously in the interpretation of those signs by the reactions, but I feel that we can make a clinical diagnosis of syphilis in many more cases if we make our thorough physical examination.

I am now seeing a number of cases that have a diagnosis of syphilis made through the Wassermann, and perfectly justifiably, but these cases are not suffering from their syphilis now, and too much importance is being given the Wassermann reaction in that respect. For instance, patients may have active tuberculosis or spinal tumors in the presence of a Wassermann reaction. Dr. Sherman will remember one of these cases, on which he operated, which had a Wassermann reaction but who, we felt from clinical examination, had a spinal tumor. Simply because a patient shows a positive Wassermann or luetin reaction does not necessarily mean that the disease we see in that patient is syphilitic.

Dr. H. B. A. Kugeler: There is one point in connection with the Wassermann and luetin reactions that attention should be called to. My attention was called to it by Dr. Jones of the State Journal; I do not think he has pointedly called attention to it, but indirectly he has warned us of the dangers that will result from the Wassermann reaction. In a case in Los Angeles a man made a diagnosis of incipient tuberculosis; the patient was examined by someone else and was told that he had no tuberculosis and never had had it. The first physician was sued, and it cost the State Society a great deal of money for his defense. If a patient has a positive reaction from the Wassermann test, we are inclined to tell him that he has syphilis. The next man that takes his blood may not find it. It is a very dangerous thing to tell a patient that because of a positive Wassermann he has syphilis. I am just telling you this as a warning of the liability of suits that are going to happen to some of us if we are not more specific in our statements.

Dr. Harry E. Alderson: I would like to say that I have seen many of these reactions at the Stanford University clinics. Some of the cases observed by Dr. Wolfsohn came from the skin clinic, as he has stated. I have never seen a definite luetin reaction appear in a patient definitely known to be non-syphilitic. This corresponds with the experience of those who have worked with Noguchi since the beginning. The test is certainly of some value, especially in latent and in tertiary cases. I have in mind the case of a man who had syphilis, had been given thorough treatment by Professor Fordyce of New York, and was considered well. He reported to me occasionally for observation. I tried the luetin test and was surprised to obtain a positive reaction. Then I had his blood examined and the serologist reported a triple x Wassermann. This experience is met with occasionally. We get a positive luetin reaction where we do not expect it, and that leads us to look a little further for more evidence of lues, and sometimes we find that our search has been warranted. As for the reaction itself, the luetin lesion is something more than a papule—it is a definite nodule. There is definite induration extending under what you see on the surface, and there are all degrees of this induration. There is no difficulty in distinguishing the control from the luetin after observing the two for several days. In the majority of cases the control subsides in a short time; while the luetin reaction persists for a much longer period.

ENTERO-CLYSIS IN THE TREATMENT OF WEAK HEARTS.*

By DR. WM. WATT KERR, San Francisco.

Allow me to preface the following remarks by the statement that I am not going to suggest the use of colon lavage in all cases of weak heart action, but only in those instances where there is good reason to believe that the feebleness of the myocardium may be induced or increased by absorption of toxins from the alimentary canal, and even then the treatment is not capable of universal application.

Entero-clysis or colon lavage is an instance of a therapeutic method that has been productive of much evil, and even death, because it has been recommended indiscriminately by thoughtless physicians, or laymen, who are incapable of selecting suitable cases or recognizing favorable from unfavorable conditions for its administration, who at the best have a very hazy idea of the benefits and

are absolutely ignorant of the dangers attendant upon such a treatment. The following description was given to me by a patient as a fair sample of a morning conversation that might be heard between the inmates of one or other of the various sanatoria where the lavage treatment is practised as a matter of daily routine:

"Good morning, Mrs. Jones. How much did you hold this morning?" "Oh, just a quart!" "Really! I took nearly three quarts, and Mrs. Smith can now hold a gallon; but I expect to do as well as she does before I leave for home."

And so the story goes, day in and day out, occasionally punctuated by some weak-hearted unfortunate having a sudden copious evacuation of an over-distended bowel, followed by a syncope that brings him to a full stop. Nearly every one is more or less familiar with such incidents which deservedly warrant censure of the negligence and ignorance exhibited, but they should not bring the therapeutic method into disrepute.

Entero-clysis is practised in a great variety of diseases, but, so far as I am aware, little has been said or written about its use in relieving the distressing symptoms of patients suffering from cardiac weakness that is caused or aggravated by intestinal intoxication, either because the relation between the two conditions is occasionally overlooked, or the use of internal intestinal disinfectants, such as urotropin, salol and guaiacol is relied upon to check the process. All of those, however, are extremely uncertain in their action in the large bowel and, however useful they may be as adjuvants to the treatment, cannot be compared in efficacy to the immediate removal of the putrescent material.

In November, 1905, I visited Mrs. R., age 65, who complained that she could not lie upon her left side, and that she was awakened nearly every night by one or more attacks of palpitation. There was a sensation of weight in the epigastrium and a constant desire to inspire deeply. The pulse rate was 140, the cardiac apex was in the sixth space four and one-quarter inches to the left of the sternum, and on auscultation a blowing mitral systolic murmur was easily heard. The area of hepatic dullness was increased.

Every other night, for three doses, she was given two pills containing blue mass and compound rhubarb pill, and four times daily she received ten minims of the tincture of digitalis. At the end of forty-eight hours the pulse rate had dropped to 120 and the patient felt very much better, but after this the case dragged and for several days there was little or no improvement. One morning the nurse mentioned that, notwithstanding frequent and successful use of laxatives, the stool for the first time contained some dry scybalous pieces; consequently instructions were given to wash out the bowel with a warm saline solution every alternate morning, and upon the night preceding the lavage to introduce into the colon, through the long tube, about six ounces of sweet oil and to advise the patient to retain it all night if possible. After the third oil injection a very large quantity of dry fecal matter came away, and then each lavage showed less and less until at the end of about two weeks

* Read before the California Academy of Medicine, November 25, 1912.

the returning stream appeared to be normal. From this time on the oil was discontinued, but the saline lavage was used every fourth day for two weeks, after which time it was abandoned, and the patient was advised to take petroleum emulsion three times daily after food as well as the following capsule every night in the hope of preventing the feces from becoming dry and of increasing the intestinal tone:

R
Ext. Physostigmat. grs. ii
Ext. Nucis Vom. grs. vi
Ext. Cascar Sagrad grs. xxx. Mix
Ft. mass et divide in capsules xii.

From the day that lavage was commenced the patient began to respond to treatment and improve. She remained perfectly free from cardiac discomfort until the beginning of this year when she had an attack of influenza, and this was followed by cardiac depression and intestinal atony that after a time yielded to a similar line of treatment, so that at the present time she is in perfectly good health for a lady of her age.

It is not necessary to mention other instances as this sufficiently illustrates the topic offered for discussion, but it may be of interest to recall some of the *data* upon which the treatment is based, as well as to refer to the type of cases that are most liable to be benefited by it.

The alkalinity of the colon makes it particularly well adapted to the growth and activity of the bacteria producing putrefaction in the proteids that have escaped digestion and absorption in the small intestine, and which in the process of putrefactive fermentation yield not only peptones and proteoses but also numerous terminal products such as indol, skatol, phenol and the animal alkaloids generally known as ptomaines, some of which are excreted in the feces while others are absorbed and, after undergoing farther change, are eliminated in the urine and bile.

Not infrequently we meet with acute symptoms due to the action of these toxins, but that possibly happens only when putrescent food containing such substances already formed in considerable quantities has been ingested; on the other hand the mental and physical lassitude, the occasional attacks of slow or intermittent pulse, palpitation and cold extremities, that are so frequently associated with intestinal indigestion, constipation or inactivity of the liver, all indicate that defective elimination or excessive formation can result in a slow chronic form of auto-intoxication.

The heart cases in whom I have seen the most marked benefit follow colon lavage are patients from sixty years of age and upwards where senile myocardial changes are beginning to make themselves felt, and where the growing inability or disinclination to exercise induces a loss of tone in the intestine so that, although actual constipation may not exist, the bowels never are thoroughly evacuated, and consequently a very favorable condition for putrefaction of the colon contents and auto-intoxication results. When a patient suffers from chronic constipation he is aware of his condition,

and by the use of laxatives insures a daily clearance and thus may obviate the consequences of fecal retention. But there may be another reason which explains why those cardiac symptoms are more readily produced in people who have acquired a tendency to irregularity or imperfect evacuation of the bowels during the latter years of life than in those who have been constipated almost from childhood, and that is the well-known fact that a tolerance against the toxins of putrefaction appears to be established not only in individuals but in races. Thus it is notorious that the natives of Siam, as well as the Eskimo and other races, prefer to eat their fish and meat in a state of mal-odorous putrefaction, and some of the Chinese tribes regard rotten eggs as a delicacy, while the Zulu rises to the epicurean climax when he talks of heaven as "Ubomi," which being interpreted means "maggoty meat"; evidently he likes things very high. It is therefore evident that a tolerance of the common toxins of putrefaction is developed, and it is quite possible that this takes place slowly in those who have suffered from constipation from early life. Furthermore, if the liver becomes passively congested as a result of weak circulation, or if the hepatic cells are injured or exhausted by the specific character or excessive amount of the toxin absorbed into the portal circulation, then the liver will no longer be an effectual barrier against the introduction of toxins into the general circulation and constitutional symptoms may result.

As an illustration of the influence of intestinal toxins on the heart one cannot help thinking of the relations between the proteid alkaloid choline and the vegetable alkaloid muscarine.

The substance lecithin, which is present in varying quantities in many foods, and in large quantities in yolk of egg and brain tissue, is split up by the pancreatic juice into glycerin, phosphoric acid, fatty acid, and choline, which latter is highly toxic but is usually, as a result of bacterial action, eliminated as carbonic acid, menthane and ammonia. Choline resembles muscarine in its toxic effects and has been transformed into muscarine synthetically by a process of oxidation. Again, muscarine has been obtained from decomposed beef, so that the question naturally arises: Since choline is normally found in the intestine and can be transformed into muscarine, and since muscarine has been found in decaying beef, is it possible that under certain abnormal conditions, such as excessive formation or defective elimination of the former, or some perversion of metabolism, the transformation may take place within the human body? If such be the case then we can understand the symptoms in many chronic cases of auto-intoxication, because it is well known that muscarine depresses the motor power of the heart, causes slowing and finally arrest of the beat by stimulating the vagus, arrest finally taking place while the heart is in diastole.

In considering the advantages of colon lavage, the great absorptive power of the colon for water must be taken into account apart from the mere cleansing effect of the entering and returning streams, and since this is not associated with a corresponding watery secretion as is the case with the small in-

testine, the water that is retained in the colon, which is always considerable, is absorbed, flushes the tissues and circulation of many toxins that have been absorbed, and eliminates them by diuresis. This answers the criticism occasionally made that entero-clysis only cleanses the colon while it has no influence upon toxic conditions due to disturbance in the small intestine; moreover, it should be remembered that there are two reasons why lavage of the small intestine is not so imperatively demanded. First: While water is absorbed to a considerable extent from the small intestine there is a compensatory secretion of fluids into the bowel so that the contents remain equally liquid all the way from the pylorus to the ileo-cecal valve, and consequently there is not the same opportunity for stagnation as to the large bowel when absorption of liquid is so far in excess of secretion that the feces become dry and formed; indeed Noel Paton (*Human Physiology* 352) estimates that in the entero-hemal circulation of fluids about 3000 c.cm. of secretions, about half the volume of the blood, are poured into the intestine every day and almost entirely reabsorbed. Second: In the small intestine normally only those bacteria causing carbohydrate fermentation are particularly active, while in the large bowel protein putrefaction is a constant and normal occurrence. Lastly it may be asked: Since bacterial fermentation takes place normally in both large and small bowel, may we not by this process of lavage interfere with a physiological process to such an extent as to seriously interfere with nutrition? First it should be clearly understood that entero-clysis is not advised for healthy persons nor for every form of sickness, but only in those cases where there is distinct evidence of pathological processes resulting from intestinal putrefaction; and even then it is not to be used continuously but to be gradually discontinued as the special symptoms abate. I mention this because there are laymen, unfortunately countenanced by members of the medical profession, who find in colon lavage a panacea for all existing bodily ailments and a prophylactic against all imminent diseases, who consequently advocate its use in sick and well alike with as little compunction as they would order a foot-bath. Second: Physiological research has shown that "while the presence of the bacteria confers no positive benefit, the organism has adapted itself under usual conditions to neutralize their injurious action. According to Metchnikoff, on the other hand, the constant production and absorption of bacterial toxins from the intestine is one of the important causes of a loss of resistance on the part of the body to the changes which bring on senescence and death." (*Howell's Physiology*, 796.)

The amount of fluid used in an injection should never exceed one quart of warm salt solution at a temperature of 100° to 103° F., indeed smaller quantities are to be preferred because they do not distend the bowel, and their expulsion is not so liable to be followed by the faintness or syncope which occasionally ensues if the patient with a weak heart be allowed to suddenly expel a large quantity of liquid from the bowel, especially if he

be the subject of aortic regurgitation. The weaker the heart the more urgent the necessity for limiting the amount of water to one pint, and for cautioning the patient to allow the return stream to escape intermittently instead of in a gush. The pressure should not be more than an elevation of six or nine inches above the patient's buttocks when he is lying on his right side with the knees drawn up; and if this invariably produces pain from spasm of the bowels or induces perspiration and faintness, then the treatment should be abandoned.

If the retention of much hard fecal matter be suspected, then the injections of oil alternating with water may be used as in the case reported.

It not infrequently happens that the injection does not return, and the nurse, after waiting for a short time, repeats the process with an equal or even larger volume of water in the belief that by distending the colon to a greater extent there will be a corresponding recoil and the bowel contents expelled. This should not be permitted as the retention indicates atony of the bowel and distention will simply increase this condition; it is very much better to wait for several hours, or until the next day, at least until the water has been absorbed and voided through the kidneys. At the same time if the patient be given a course of strychnine or nux vomica the tone of the bowel will in many instances be restored.

I feel that it is somewhat presumptuous on my part to mention such details in regard to the technic of colon lavage, but I do so to emphasize the fact that the attending physician not infrequently fails to give detailed instructions to the nurse who is carrying out the treatment, and unpleasant incidents result.

Discussion.

Dr. George Ebricht: Even in the presence of good health it has long been recognized that overloading combined with sluggishness of action of the large bowel is a sufficient cause for disturbance in other parts of the body. If this is true in well people, it is natural that those who are suffering from some illness would be that much the more affected. The initial dose of calomel in acute illnesses bespeaks the recognition of this opinion. Where the illness is of a chronic nature it stands to reason that intestinal stasis must have its ill effect. The importance of this is, in chronic heart conditions, too much neglected. For a number of years I have found benefit follow the administration of teaspoonful doses of castor oil for five or six consecutive nights in chronic heart trouble associated with flatulence.

Dr. J. B. Frankenheimer: I would like to mention a certain instrument of torture that some people use. It is a rubber bag like a hot water bag, with a nozzle in the center on which the patient sits and regulates the pressure of the fluid which is forced into the rectum. The apparatus is advertised by a New York firm, and has a capacity of about 3 quarts. It is obvious that this is anything but an ideal method of taking an enema. I have had at least one case in which distension of the descending colon has occurred. Of course, this is not pertinent to the paper, but I would like to call the attention of the physicians present to this method so that precautions should be taken to describe to the patient the proper way of flushing the colon.

Dr. Kerr, closing discussion: I happen to have one or two patients who have adopted the use of the particular bag to which Dr. Frankenheimer referred. I have never seen the bag, have only

heard it described. My patients used it because there was no one to assist them in passing the large tube and in preparing the ordinary colon injection; but they seemed to get along pretty well and have even injected intermittently. One gentleman when in the country had to come down to this kind of thing or go without. He told me that if he used this form of injection rapidly it gave him pain, but by injecting a little, then turning the stop cock shutting it off, then injecting a little again, there was no pain. He never filled the bag more than quarter full and consequently suffered no inconvenience.

ORTHOPEDIC TREATMENT OF SPINAL POLIOMYELITIS.

By JAMES T. WATKINS, M. D., San Francisco.

The present paper was delivered in abstract before the California State Medical Society at Del Monte in April, 1912. The time limit set made it necessary to confine its scope to a consideration only of the principles governing the operative side of treatment. Here in the full text other, and if anything more important features of treatment are also given consideration. Occasional repetitions appear in the text where facts were deemed sufficiently important to warrant reiteration.

It may be accepted as finally determined that in spinal poliomyelitis we have to do with an infection which particularly attacks the nervous tissues. The characteristic lesion is a collar-like round cell infiltration of the adventitia of the blood vessels of these structures. The tendency of this round cell infiltration is to cause a diminution of the lumina of the affected vessels. In some instances they are obliterated. The degree and distribution of this vascular occlusion determines whether or not paralysis will supervene and, when paralysis does occur, whether it will be temporary or permanent.

We recognize an acute stage, or stage of invasion, a stage of recovery, and the final or end stage—that stage beyond which there will be no further improvement.

The opinion seems to prevail now that of those stricken with the disease from 20% to 25% either recover without paralysis or, after being paralyzed, recover from it. From a sixth to a third of the patients in different epidemics die during the acute stage of the disease of respiratory paralysis. The remaining victims are permanently crippled to varying degrees.

The medical treatment of spinal poliomyelitis remains at this writing unsatisfactory. Once the disease has progressed far enough to be recognizable, there is thus far no known remedy which will check an attack nor limit its distribution. It is, however, within the bounds of probability that eventually an efficient vaccine against the attacks of poliomyelitis may be evolved.

In the meantime orthopedic surgery holds out hopes of benefiting the patient in each of the three stages.

It is susceptible of demonstration that during the stage of invasion orthopedic surgery can, by immobilizing the spine, cause an amelioration of the sensory symptoms; and, reasoning by analogy from what we know of the influence of immobilization upon other spinal inflammations, it is probable that this procedure may also limit the spread of the disease. It is further susceptible of demonstration that during the second stage, that of recovery, orthopedic surgery may advantageously be employed to conserve and to develop to the utmost all of

whatever muscle substance may have been spared by the ravages of the disease.

Again, in all three stages orthopedic surgery is invoked to prevent deformity, or, if deformity be present, to correct it. Finally in the third and last stage, orthopedic surgeons aim by a judicious redistribution of whatever muscular power may be left to re-establish the muscular balance about a joint and to reconstitute the function of the limb.

THE STAGE OF INVASION.

A distressing feature of the later epidemics of spinal poliomyelitis has been the very severe pain which obtained throughout the stage of invasion. This signified that we had no longer to deal with an *anterior* poliomyelitis only, but that the sensory tracts had also been invaded.

For some time it has been recognized that acute inflammations of joints are best treated by immobilization. It remained for the neurologist Oppenheim, however, to suggest that this principle of treatment might advantageously be applied to cases of poliomyelitis. Acting upon this suggestion, Lange of Munich, in 1909, demonstrated that "children ill with poliomyelitis and suffering severe pain in the spinal column, became free from pain on the application of a plaster of paris jacket which embraced the entire trunk." And, as was noted above, it seemed to him indeed probable that this immobilization hindered the spread of the inflammatory process throughout the cord.

The most efficient fixation apparatus, and one, too, which would maintain the feet in the proper relation to the legs, was the plaster of Paris bed which the writer saw employed at the Instituto Rizzoli in Bologna. This was constructed by placing the patient with the body in slight hyperextension while the arms and thighs were maintained slightly abducted, the forearms and legs slightly flexed, and the feet at right angles to the legs and a little inverted. In this position, after being generously padded, they were individually encircled with plaster of paris bandages to a uniform thickness of one-quarter inch. The occiput was also included. When it had set this plaster of paris mold was cut through all around in a frontal plane. In this way a bed with an anterior and posterior valve was devised. Each valve was subsequently reinforced with more plaster and spanners of light wood. The plaster was cut away under the buttocks sufficiently to make room for the action of the emunctaries.

To perform the toilet of the back the accurately fitting anterior valve could be applied and then the entire appliance with the child in place, turned over upon its face. The patient would lie quietly then in the anterior valve while the posterior valve was removed to facilitate the cleansing and powdering of the skin.

For practitioners not sufficiently expert in the use of plaster of paris to construct this bivalve plaster-bed, the use of the long plain plaster of paris jacket is to be recommended. The gas-pipe and canvas frame bent backward and made more efficient by sand bags about the patient also offers a vast improvement over the ordinary bed and pillows.

THE SECOND STAGE OR STAGE OF RECOVERY.

It is of the very greatest importance, especially where the disease has attacked the upper extremities, that efforts be made to constantly maintain the paralyzed limbs in postures in which the ligamentous structures of their joints will not be subjected to strains. Each limb should in a sense be supported by itself and not permitted to drag on nor to dangle from the trunk. At the same time the postures of selection should be those the maintenance of which would oppose all tendencies to the development of contractures.

Muscular regeneration may continue for a year (Lange), eighteen months (Ridlon), or even two years (Jones) after the occurrence of the paralysis. Therefore it behooves us, during this period, to do all in our power to conserve and develop the remnant of muscular power left. The agents we may employ to this end are the various electric light, hot air, and water baths, electrical currents, massage, and above all, the exercise treatment. All authorities are agreed, however, that for three to eight weeks after the invasion no treatment at all should be given, and that for the following two to three months it should be given sparingly and gently.

The theory and practice of balneotherapy is elaborated much more fully in works devoted to that subject than it would be possible to discuss it here. It is worthy of record that because of the buoyancy of the body in water, voluntary movements can often be performed while in the bath tub much earlier than they can when out of it. For that reason it will nearly always be found of value to begin developmental exercises while in the tub for the daily bath.

There is a diversity of opinion among the men best fitted to express one as to the therapeutic value in poliomyelitis of the electrical currents. While he was an assistant in Hoffas' clinic at Würzburg the writer was taught to believe in the value of electricity. To-day he is inclining more and more to the opinion that electrical currents play a very small part in the therapeutics of spinal poliomyelitis. This much may be said of them, however, and especially of the slowly interrupted galvanic current: they are of value in so far as they tend to maintain the tone of temporarily paralyzed muscles by causing them to contract—that is, by exercising them. In this respect they may be said to hasten recovery. But that the use of electric currents will bring about recovery in a muscle which could not otherwise have been saved, remains to be proved. On the other hand, where they cause pain and frighten little children, their use is to be condemned. These views are diametrically opposed to those in vogue at Würzburg ten years ago.

Massage skilfully conducted is a valuable agent in augmenting nutrition. Unwisely performed, it may be capable of doing serious mischief. In this relation, Lange says: "I should like to warn you against a rough, hard massage, and above all, against a deep, firm, stroking massage. When you reflect how soft and tender the muscle paralyzed by poliomyelitis is, you will acknowledge that we

must be very careful in handling such a delicate structure; just as it is possible by a powerful massage to remove fat on an undesirable part of the body, so we can, I am convinced, weaken and injure a paralyzed muscle by a rough massage instead of strengthening it, as is our object and intention."

Authorities are unanimously of the opinion that appropriate exercise is of greater value than all other factors in conserving and re-developing muscle force. As Lovett puts it: "Muscle training is coming to occupy the prominent place in our therapeutics that it deserves and is superior to either of the two measures" (electricity and massage) "mentioned. As a therapeutic measure it has the advantage of directness in being exactly what the muscle has got to do in restoring or improving function."

Clinical observations justify a minuter study of the processes by which the exercise treatment is believed to work for the betterment of these cases.

Before entering upon a discussion of the theory and practice of the exercise treatment it may be appropriate to pause long enough to consider what should be the proper attitude for the physician to maintain toward his patient and toward the patient's family, a factor of no small importance in determining the final outcome of the case. Once it is manifest that the patient is not going to die of a respiratory paralysis, it is the writer's conviction that the attitude to be maintained by the physician toward the outcome of the disease should be one of *cheerful optimism*. We have no assurance that recovery will not be complete, and further we do know that in a large proportion of the cases only one or two groups of muscles will be permanently incapacitated. On the other hand, we must recognize that the patient and his family are entering upon a course of treatment which, if the most is to be made of it, will certainly occupy months and may occupy years. At the outset they are crushed under the weight of the calamity. If they are to find the courage to undertake and to carry on throughout its weary length that treatment which will make for the best results, we have to be ready at all times to offer a ready sympathetic and optimistic shoulder for them to lean upon when momentarily spent with the fight. This I regard as a most solemn duty.

Success in the exercise treatment depends in large measure upon the co-operation of the child. The younger the child the more difficult will it be to obtain and maintain this co-operation. The almost infinite variety of exercises to be performed in the course of a long treatment have each of them to be repeated hundreds of times. Therefore the person, usually the mother, upon whom this work will in most instances devolve, must become the playmate and the physician or gymnast directing the work, not only be the mentor, but also the comrade of the little child. Certain facts must constantly be kept before the attendants and parents. One of these is that deformities are not necessarily the consequence of disuse, but that they are the gradually acquired results of improper function. Also that unless anticipated, improper function is sure to result when certain muscle groups

reacquire their activities sooner than do their antagonists; and in other instances that it is caused by distortions produced in the member by the pull of gravity. Consequently, distortion is to be guarded against before and during the period of repair by means of massage, of special exercises, of careful balancing and of braces.

Another matter to be emphasized is the importance of permitting, encouraging and even *requiring* the child to overcome without assistance the disabilities visited upon it by its paralysis. Our most difficult task will be impressing this fact sufficiently upon the mother. It will be asking her to act against every instinct of her nature. But if she does not learn and practice it, she will materially hinder the recovery of her child.

The child should be led to put forth every possible effort in moving the legs and feet along some simple selected lines. But the moment it complains of being tired, exercises should cease. As a layman, Prof. Barnes, says: "There can be no doubt that if exercise is too long neglected, memories of movements formerly used will tend to fade out of the mind and a habit of helplessness will be formed. There can also be no doubt that effort energizes nerve centers and prepares them for greater efforts. And if properly handled, the drills and exercises will react on mind, disposition and will so as to greatly develop and strengthen them in turn." In young children especially the exercises should take the form of a series of plays. In a little boy under my care the right leg is Jack and the left leg Jill, and there is a constant rivalry between them to see which can do the most "stunts"—stunts of which the little boy is an almost breathless spectator.

In play with normal children, much benefit may follow efforts at imitating them.

Without stopping to discuss them separately, it may be well to enumerate the following factors which have proved of value: Exercise in the bath, gradually diminishing the amount of water as the limb gained in strength, a baby walker so constructed that the feet could just touch the floor, a tricycle with the patient's feet strapped to the pedals, riding horseback or rather pony back, swimming, innumerable games similar to those just enumerated, massage and appropriate braces.

I turn now to what I may call the theory and practice of the exercise treatment.

The most comprehensive discussion of the theory and practice of exercise therapeutics, as it applies to the treatment of spinal poliomyelitis, is that given by Bucholtz. He in turn accepts and quotes the views of Leyden, of Goldscheider, of Jakob and of Lazarus. These views of an enormously important and, in this region, almost wholly unconsidered subject, the writer has attempted to epitomize in the following pages. Occasionally he has been impelled to quote Bucholtz' words. Repeatedly he has appropriated his ideas or those of his teachers.

To obtain a proper conception of the manner in which the exercise treatment works in infantile paralysis we have to consider its effect—

1. Upon the primarily affected neurons; and
2. Upon those neurons which are (a) in func-

tional association with the primarily affected neurons, and (b) its effect upon neurons which might possibly be substituted for neurons which had been destroyed.

3. Its effect upon the musculature.
4. Its effect upon (a) the joints, (b) the bones.
5. Its effect upon (a) the internal organs, (b) the general health.
6. Its effect upon the patient's mind.

As has previously been said, it is practically impossible in poliomyelitis to anticipate which neurons will remain paralyzed. Regeneration has been known to occur a year or eighteen months after the paralysis. Again, when a neuron, or group of neurons, ceases working, all the neurons which are in functional association with it suffer from disuse. These are the associative neurons which connect the various cerebral centers, and the sensory neurons which, passing centripetally from the bones and joints, make it possible for the brain to control the correct performance of a motion.

The term "Stimulus threshold" about to be used signifies the point or height to which a stimulus must attain either in amount or in intensity in order to overcome the inertia of a given neuron. Or to say the same thing another way, whenever a stimulus acquires an amount or intensity sufficient to overcome the inertia of a given neuron, the point so attained is termed the "stimulus threshold" for that neuron. Naturally this is not a constant quantity nor state of being. Outside agencies may act to raise or to lower the stimulus threshold of a neuron.

The stimulus employed must be above the "stimulus threshold" of a given neuron before the latter can be said to be "in a stimulated condition." A stimulated condition of the primary will act as a stimulus to the associated neuron if the stimulus be above the stimulus threshold of the latter. Again, though a stimulus may itself be below the stimulus threshold of a given neuron, it can none the less prepare the way for a subsequent stimulus, thereby enabling the latter to overcome the inertia of the primarily affected neuron and possibly to be continued over into the contact neuron.

Mention should be made regarding the effect of the exercise treatment upon neurons which may possibly be substituted for neurons which have been destroyed. Observations by both German and French writers have seemed to show that when the pyramidal tracts on one side were destroyed the subcortical centers and the associative neurons of the same hemisphere, as well as parts of the other hemisphere, may to some extent take their places. In order to take advantage of these adjunct nervous tracts, they have to be educated and their neuron thresholds lowered through judiciously chosen and sufficiently protracted courses of exercise.

Orthopedic surgeons will recognize in the action of these alternate nervous tracts the probable explanation of some hitherto inexplicable phenomena which have appeared late in the course of the after-treatment of conditions following spinal poliomyelitis.

The influence of exercise upon muscles is to increase the power and endurance of a muscle and

then actually to increase its amount. This improvement must necessarily be associated with a favorable influence upon the nervous apparatus.

"In most parts of the body the muscles are arranged in such a way that if one muscle be paralyzed another may take its function to some extent, and this substitution is at times surprisingly good." Where we have to deal with partial paralysis following spinal poliomyelitis, our aim should be to determine which muscles can best be substituted for the paralyzed ones and, in so far as is possible, to strengthen such a substitute. We will consider this matter again in discussing the principles which underlie the operative treatment of spinal poliomyelitis.

The prevention of contractures and of stiffening may be the principal result of exercise treatment as applied to joints. The writer has repeatedly seen milder degrees of contracture disappear under passive manipulation. Severer cases may call for the employment of mechanical appliances with or without surgical intervention.

It is practically always noticeable that the bones of a limb affected by poliomyelitis are smaller than those of its fellow. This may be due in part to destruction of the centers of nutrition. Principally it is consequent upon disuse. The value of exercise in developing the bones of such a limb can hardly be overestimated.

The influence of exercise upon the internal organs is in no wise different from what it is for normal individuals.

The beneficent influence of exercise, particularly upon the minds of older persons who have become paralyzed, should never be overlooked. For them exercise stands in the relation that games do to healthy persons. And the improvement in spirits and enjoyment of life is said to be out of all proportion to the muscular control gained.

Ideally the orthopedic surgeon should himself prescribe and personally supervise the exercise treatment, both in developing to the utmost the remnant of his patient's muscular power, and after an operation for muscle transference, in training the transferred muscle in the performance of its new function. Unhappily this is for financial or social reasons usually impracticable. However, it implies that he should study each individual case for itself; that he must have recognized to what extent muscles and nerves have been affected; that he must appreciate the mechanical possibilities and limitations of the joint, and the general condition of the patient. Particularly must he guard against injuring the delicate nerves, muscles and joints through misdirected zeal. Next to caution must he exercise patience. Results come slowly, so slowly indeed that during the first few months improvement can be recognized only if a written record be kept of the ability to perform motions before and after given intervals of time.

The tension of the muscular tissues merits special consideration. Sometimes recovery is hastened by employing apparatus to hold the limb so as to relax the affected muscles. At other times this may best be accomplished by tenotomizing their antag-

onists. This feature will be considered more fully later.

Technic. Whenever the peripheral motor end neurons are affected, as in spinal poliomyelitis, the greatest care must be taken not to injure the delicate and now specially vulnerable neuro-muscular apparatus.

We have already said that authorities are agreed that for the first 3 or 8 weeks following the invasion no stimulation at all should be employed and that during the following months it should be used with great care. Throughout treatment the following rule should be complied with in exercising a muscle: "Exercise to the point of moderate fatigue makes for improvement both in the quality and quantity of a muscle. Exercise beyond this point is harmful to a muscle."

The manner in which exercises are performed is of scarcely less importance than the determination which exercises to perform. Therefore the physician should not content himself with saying flex this or abduct that so many times. He should also prescribe the position in which the limb must be held before attempting to perform the exercise, the amount of outside support to be afforded the limb during the performance of a given exercise and the arc through which an exercise should be carried out.

For example, adduction and abduction exercises are easiest performed when the patient is emerged in the bath. For flexion and extension exercises the resting part of the body should be horizontal and the active part vertical or nearly so. For example: The muscles of the knee are best exercised with the patient lying face down with his knee flexed. Particularly in performing exercises of the hip and shoulder is support necessary.

Almost always treatment begins with passive exercises. At least twice a day each joint should be carried in every direction to the limit of normal motion. There is an exception to this rule, however. When the prolonged maintenance of a limb in one of the extremes of motion at a given joint has made it probable that certain muscles are overstretched, once this distortion is overcome under no circumstances should the posture be again permitted even for an instant.

At first single muscles or groups of muscles should be exercised. Later simple movements and then combined movements may be attempted.

Symmetrical exercises are of exceptional value when the paralysis has involved only one side. The writer has found these—especially in very young children—of the greatest service. The duration of treatment must vary with the case. Where extensive paralyses, especially paralyses of the upper extremities, have occurred, the exercise treatment should be maintained until there is no longer any evidence of further improvement.

On the other hand where time and expense are factors to be reckoned with and where an operation or a brace will give a permanently serviceable limb their employment is indicated.

Braces. We come now in the natural order of events to a consideration of the place occupied by braces in the treatment of spinal poliomyelitis.

Perhaps no one subject calls for clearer thinking nor franker discussion than this one. Properly applied a brace fulfils an important requirement in the course of treatment. Frequently it is made the means of cloaking ignorance, or at best hazy thinking on the part of the medical attendant, and, being improperly applied, works a very real harm to the patient.

The indications for wearing a brace before operation are first, to prevent deformity and second, to improve function; after operation it is properly employed to prevent the newly adjusted and still insecure operation field from being subjected to strain.

The tests of the efficiency of a splint when applied are found in the answers to the questions: 1. Does it actually prevent deformity? 2. Does it really improve function? 3. Does it in fact relieve strain? 4 (and most important). Is the limb as a whole going to be permanently benefited by its use—or is it not? The significance of the last question should not be overlooked. There are a variety of braces—especially among the sheath splints—which, while causing an immediate improvement in function, eventually bring about an atrophy of whatever muscle tissue may still be active. Such braces are to be avoided.

A brace should be made according to the attending physician's prescription; and, as in other prescription writing, it is as important to know what not to prescribe as it is to know what will benefit the patient.

In order to prevent haziness of thought a physician about to prescribe a brace should *put in writing*: 1. *What* breakdown or defect in a motor mechanism he aims, by means of the brace, to compensate; 2, *how* he proposes to make the brace do this. 3. He must then be prepared to sketch or to cut out of wrapping paper patterns of the several parts of the brace and to append the different outlines or dimensions. 4. Finally, when the brace is on he must be *able* to answer the question, *Does it, or does it not, accomplish* what it was designed to accomplish?

From the foregoing it will be evident that to make the most of a brace implies first of all, a working knowledge of anatomy, of physiology and of the pathology of the disease in question; secondly, it calls for some mechanical imagination; and thirdly, for sufficient manual dexterity to be able to fit a brace once it is made. The technical skill necessary to the actual construction of apparatus is not essential to enable one to prescribe it.

I have failed of my purpose if I have not yet made it clear that the prescribing of braces is as much physician's work as is the prescribing of medicines and that, as some one has aptly said, the physician who is so unmindful of his obligations as to send his patient to an instrument maker to be supplied with whatever apparatus the latter may select is in no wise different from a physician who would send a patient to a druggist with the request that the druggist prescribe for him.

The preceding paragraphs were submitted to a maker of orthopedic apparatus. That he recognized the distinction made is shown by his commentary.

He said, "Doctors send patients to me for braces that will make them walk better, and I do it, if not with one kind of brace then with another. But what the final effect of a brace like, say, a Helsing" (sheath splint), "will be upon the leg as a whole, I cannot say. I never had time to read up anatomy, or diseases. Anyway, that's up to the doctor. I'm not a doctor, I'm a mechanic." It is to be regretted that a portion of the profession have failed to recognize the distinction which this mechanic sees so clearly.

The use of braces is almost wholly confined to the lower extremity and when simplified to types they are so few in number that I shall ask your indulgence while I indicate them.

In the foot, assuming that no inflexible deformity be present, we first accomplish all we can by balancing the foot under the leg. If this prove inadequate we augment it with a simple bar up the leg, a calf band, and perhaps a rubber muscle. Let us take, for example, the type of foot which presents a paralysis of the anterior and posterior tibial muscles. The unopposed tension of the peroneals tends to pull the forefoot over into pronation. To oppose this tendency, we introduce a valgus wedge into the shoe to support the relatively high and unstable internal longitudinal arch. The inner side of sole and heel of shoe are also raised while the heel itself is flanged inward and at the same time advanced so as to support the shank.

Should these measures prove to be inadequate it will be shown by the way the sole of the shoe wears out. In such an event in addition to the foregoing we carry a bar up the outer side of the leg. Its upper end ends in a padded calf band just below the head of the fibula. The lower end turns at a right angle to enter deeply a round socket in the outer side of the heel. A roughly quadrilateral piece of leather is sewn by its lower border to the inner side of the shank of the shoe. Its two upper corners are prolonged in straps which, passing one in front and the other behind the ankle, pass around the bar and on being buckled pull the ankle over toward it, thereby causing the foot to assume the position of supination. A rubber muscle from the inner side of the forefoot to the calf band may help to maintain dorsal flexion. Not infrequently the patient persists in walking with such a foot turned outward so that the instep looks forward. The rotation occurs in the hip joint. In such an event in order to control the rotation and to maintain the foot looking forward it is necessary to prolong the bar upward until it attaches to a padded pelvic band. It will be necessary to have the bar jointed at the knee and at a point just below where it attaches to the pelvic band.

For correction of the supinated position consequent upon paralysis of the peronei one uses braces and measures which reverse the strains exerted by those just described.

For dropping of the forefoot consequent upon paralysis of the dorsal flexors, a simple and efficient apparatus consists of two uprights united below by a plate which screws to the sole of the

shank of the shoe, or they may be united in a sole plate to be worn in the shoe. Above the up-rights are united by a broad calf band. Opposite the ankle are joints which admit of unlimited dorsal flexion but which lock when the foot is at right angles to the leg, thereby preventing further plantar flexion. Rubber muscles reaching from either side of the forefoot to attach to each calf band may or may not be added.

For the reverse condition of calcaneus or heel drop no braces prove satisfactory. Feiss' modification of Whitman's calcaneus brace is perhaps the best.

For quadriceps paralysis, a caliper attaching below to the heel of the shoe in the manner first described, and united above by a broad band just below the gluteal fold represents the type of brace indicated. A knee cap or a broad strap just above the patella attaches to either leg of the caliper and prevents flexion at the knee.

It is often desirable that the affected limb should be maintained during the sleeping hours in the over-corrected position. This is best accomplished by means of sheath splints made on over-corrected plaster models of such limbs. However, such splints should not be laced tightly enough to compress the limbs.

THE THIRD STAGE.

It is estimated by some writers that as high as 80% of the victims of spinal poliomyelitis present permanent paralysis of one or more muscles. Whether or not this estimate be excessive, certain it is that the percentage of those affected is very high.

When after a year (Robt. Jones says two years) it is apparent that further improvement may not be expected to follow a protraction of conservative treatment the question arises whether function might not be still further improved by operative interference.

The lines of treatment which have then to be considered are 1, nerve anastomosis; 2, tendon grafting; 3, tendon transference; 4, arthrodesis; 5, the use of intra articular silk ligaments.

NERVE ANASTOMOSIS (SPITZY ET AL.).

In theory the form of operative treatment which most ideally meets the requirements of spinal poliomyelitis is nerve fusion, or nerve anastomosis. This method aims to supply the nerve of a paralyzed muscle, or group of muscles, with fresh axis cylinders by grafting or fusing it with a nerve trunk known to be healthy.

In actual practice this operative principle has not worked out satisfactorily. A few cases have been reported where the operation has been followed by muscle regeneration; but a critical analysis of such cases has not shown that under proper treatment these particular patients might not in time have recovered without operative interference. On the other hand great numbers of cases have been observed in which the operation was without beneficial result and relief had to be sought through other means. Finally in the attempt to recuperate by this method nerves which have suf-

fered from the disease there is the ever present danger of dissipating whatever power may be left in the uninjured nerve trunks. Therefore, while it has been under consideration for nearly a decade nerve anastomosis cannot at this writing be given preference in the treatment even of selected cases of spinal poliomyelitis.

TENDON GRAFTING (NICOLADONI, VULPIUS, CODIVILLA ET AL.).

The tendon graft was introduced by Nicoladoni about three decades ago. The fundamental principle underlying operations based upon this plan was that each paralyzed tendon must be attached to an actively contractile muscle.

This method is not free from serious objections, however. First the necessity for supplying each paralyzed tendon with active muscle substance frequently implies very complicated operation plans, and whenever paralysis are at all extensive, the attachment of the tendons of antagonistic muscles to the same source of power. When tendons which exert opposite pulls are attached to the same muscle belly, the power generated by a contraction of the latter, being exerted at the same time in opposite directions, must inevitably neutralize itself, and prevent rather than inaugurate motion.

Again where the problem has been sufficiently simple to permit the tendons of paralyzed muscles to be supplied with independently contractile muscle substance, it was matter of general and recurring comment that what had at first appeared to be a truly brilliant result gradually, under the influence of functional use disappeared, while the limb relapsed into a condition approximating the original defect. A great many causes for this failure have been suggested. The one which subsequent operations have shown to be most constant was the disposition of the paralyzed tendon to stretch between its insertion and the site of its attachment to the healthy muscle. The method has, however, a limited field of usefulness in operations upon the forearm and hand where the causes of disability were other than the lesions of spinal poliomyelitis.

TENDON TRANSFERENCE (LANGE).

The method of Lange differentiates itself from all others in that it takes no account of the paralyzed muscle nor of its tendon. It attempts to improve the function of a paralyzed limb by a redistribution of the remnant of its muscular power. It aims to free the tendon of a healthy muscle from its insertion and to reattach it at that bony point where it will best do the work that had been done by the paralyzed tendon before the invasion of the disease. In this way, too, the muscular balance normally present about a joint and which had been upset by the paralysis, is again established.

It should be clearly understood, however, that no operation will augment the sum of the muscular power left active by the disease. If it does anything at all, operative interference will diminish that sum. All that can be accomplished by operative means, aside from overcoming deformity and

obliterating uncontrolled motion, is to transfer part of the power which had been pulling a limb into distortion to a point where it will oppose the pull of the active muscles which have been left undisturbed.

Our recognition of the value of this method is not a new departure. Nearly a decade ago, on the twenty-third day of April, 1903, in an address before the California State Medical Society, the writer said:

"The object of the present paper is to direct attention to a rational and efficient method of treating a group of cases which has proved intractable to other methods of treatment."

In that paper was described for the first time in America, the so-called "periosteal implantation method" of Lange. Since then this method has received such universal acceptance among orthopedic surgeons that already in 1910, Lovett of Boston, was able to obtain over forty answers to the following questions he had sent out in the form of a circular letter to the active members of our orthopedic association. These answers he made the basis of a report delivered in the same year before the World's Medical Congress at Budapest. I quote from Lovett's report:

(To be continued in the October, 1913, issue.)

A REVIEW OF BLOOD CHANGES THAT MAY ASSIST IN THE DIAGNOSIS OF CANCER.*

By SURGEON DONALD H. CURRIE, United States Public Health Service.

Several weeks ago a patient entered the Marine Hospital of this City, complaining of a progressive loss of weight and strength, accompanied by extreme pallor. Clinical examination showed a non-pulsating tumor of the epigastric region, and but little else. On account of the appearance of the man together with a tumor of the region mentioned, an analysis was made of the stomach contents obtained after the ordinary Boas' test breakfast, although no gastric symptoms were complained of. Hydrochloric acid was found to be absent in the contents, but no lactic acid was present. This test was repeated with the same result. An examination was made of his feces for bacilli of the Boas-Oppler type without any definite results. An examination of the blood was made which showed the following conditions: Hemoglobin 27%; red cells 2,848,000, white cells 9300, of which 10% were lymphocytes, 84% polynuclear cells, and 6% basophiles and large mononuclear cells. Of the red cells one normoblast was noted, while microcytes were numerous. There was no general increase in the size of the red cells and, with the exception of the microcytes mentioned, no marked variation between the sizes of the several red cells. The red cells showed marked diminution in the amount of hemoglobin, being extremely pallid.

This anemia, of a secondary type, notable for the deficiency of its hemoglobin in proportion to the corpuscles, accompanied by a slight degree of polymorphonuclear leukocytosis, while by no means completing the diagnostic evidence, when taken with the other symptoms appeared to justify us in recommending an exploratory operation with the expectation of finding a malignant growth. This was done by Surgeon Woodward of the Marine Hospital and an inoperable carcinoma of the stomach discovered.

This case coming, as it did, on the heels of a very similar case several weeks before, impressed upon me the extremely unsatisfactory nature of the symptoms of some of these cases of malignancy of the viscera, when the ordinary methods of examination and tests are conducted—for even when the stomach is involved, the examination of its contents is often inconclusive; the examination of the feces frequently reveals more Gram-fast bacilli than one would expect in health and yet not a sufficient increase of their numbers to justify definite conclusions; and all cases do not have a tumor, as this one did, to assist one in reaching an opinion.

Impressed by these facts and, in order to be better equipped for furnishing a more definite opinion on the next case of visceral malignancy, I turned my attention to the literature of recent methods of blood examination for the diagnosis of carcinoma, and have carefully reviewed this subject as far as the American and European literature accessible to me would permit. In collecting data of this kind we did not hope to find any single test described which would diagnose malignancy with certainty, but it was thought possible that, by collecting together data on all the methods of examination that have been described for detecting changes in the blood, and by the employment of the several of those that appeared to have the greatest utility, we might be able to lay before the clinician a blood picture, which in its entirety would be very strongly diagnostic of this condition and, by considering such a picture together with the clinical symptoms of the case, would permit him to make the ante-operative diagnosis with a fair degree of certainty. I had hoped after getting together these data to be able to test them out on cases at the Marine Hospital and later present a paper to this Society that would embody both the findings of others and the results of my own application of such findings.

I was, however, at this time requested to present a paper on this matter at this meeting, and while loath to submit an article based entirely upon literature without citing any personal experience, I, after consideration, decided to do so under the belief that it might sufficiently interest some other laboratory workers of this Society, whose opportunities and clinical material are greater than mine, to carry out a similar line of work.

The first step in approaching this subject was to make a preliminary review of the literature bearing on it; from these writings it was found that

* Read before the San Francisco County Medical Society, May 6, 1913.

the below given changes in the blood of carcinoma patients have been described by various observers:

1. Anemia of a certain type;
2. Moderate leukocytosis of a certain type;
3. Changes in specific gravity;
4. Changes in reaction;
5. An excess of sugar;
6. The power to deviate complement;
7. Hemolytic properties;
8. Antitryptic properties;
9. Precipitin properties;
10. The peculiarity of reacting to the Meios-tagmin test;
11. The absence of the property possessed by normal serum of dissolving cancer cells.

I shall consider each of these in detail:

I. *Anemia*: It has been well established for a number of years that in the late stages of carcinoma anemia of a secondary type, and especially a hemoglobinemia, is a fairly constant condition in carcinoma. When it comes to anemia in the earlier stages of the disease—the stage it is important to make a diagnosis in, the reports of various observers differ on the degree and constancy of the symptom. From the study of such opinions it appears, however, that in the earlier stages of the disease, the anemia, as a rule, is quite constant although not of a great degree. There are exceptions to this, however, and advanced degrees of anemia may precede recognizable growth. On the other hand, in the early stages, while the anemia is not of a high degree, a certain amount of it, and especially a certain loss of hemoglobin, is such a constant symptom that a full red blood corpuscle count, with full amount of hemoglobin almost excludes malignancy, and Keith states that he has never personally observed a normal blood in a case of carcinoma. Several factors influence the degree of the anemia present, notably the position of the tumor as well as the rapidity of its growth.

In the great majority of the cases the anemia is clearly of the secondary type and if it possesses any peculiarity it is in the low hemoglobin index, even when compared with other secondary anemias. Occasionally, however, the blood may approach the appearance seen in pernicious anemia in many respects, although the high hemoglobin index of that disease is rarely met with. The closest approach to the blood of pernicious anemia is stated by Harrington and Kennedy to be met with in carcinomatous metastasis of the bone marrow, so much so that when the blood presents this peculiarity in a case where the diagnosis of carcinoma has already been made, these authors feel justified in adding to this diagnosis that the tumor has been followed by a secondary metastatic involvement of the marrow.

II. *Leukocytosis*: Very recent literature appears to be remarkably meager on the subject of leukocytosis in malignancy, but going back further in recorded laboratory experiences, it appears to be generally accepted that a moderate but distinct leukocytosis, peculiar in a relative increase in polymorphonuclear cells, is present in the great

majority of cases. Exceptions are rarely met with, and among these a leukopenia has been recorded, as well as a relative increase of lymphocytes instead of the usual increase, of polymorphonuclear cells. Eosinophiles usually remain in their normal proportions, and myelocytes frequently are present in the late stages of the disease.

While leukocytosis is quite constant, the *degree* of it is subject to marked variation, and apparently depends chiefly upon the rate of the tumor's growth, the type it belongs to, its location and the presence or absence of ulceration.

III. *Changes in Specific Gravity*: It appears to be well established that in the late stages of carcinoma there is a marked and peculiar lowering of the specific gravity of the patient's blood out of all proportion to the anemia (comparing it to other forms of anemia). If this phenomenon occurred early, it might have diagnostic value, at a time when it would be of use to the clinician, but unfortunately for purposes of diagnosis, the specific gravity of the blood in early carcinoma is usually the same as in other forms of secondary anemia, and in proportion to the degree of the latter.

IV. *Changes of Reaction*: The reduction of the alkalinity of the blood in carcinoma is in proportion to the amount of anemia present and differs in no respect from the changes in other forms of secondary anemia.

V. *Excess of Sugar in the Blood*: This condition has been described as frequently present in carcinoma, but it is by no means a constant change and is met with in other pathological states.

VI. *Complement Fixation*: In considering this subject we must separate the complement fixation tests that have been made with the serum of carcinoma patients using *syphilitic* antigen, in other words, the Wassermann test, from those attempts that have been made to diagnose carcinoma by an analogous test to Wassermann's, in which an extract of a carcinoma was employed as the antigen.

Scattered through the literature of the Wassermann reaction there will be found an occasional reference to a case of malignant tumor in which Wassermann's reaction was positive. Even allowing for the possibility that some of these patients are syphilitic and the variations in the technic of these tests, it would still appear probable that one of the sources of error of Wassermann's reaction is that it may occasionally be given by a case of carcinoma. This is of no diagnostic value for carcinoma, its only interest being to lessen to a slight degree the reliability of the Wassermann test in syphilis.

Of the recent writers the only one that I am familiar with who claims that a large percentage of carcinoma patients give a positive Wassermann reaction is Caan, who secured positive Wassermann reactions in 41% of the carcinoma patients' blood examined by him. Recently Newmark reported before this Society a similar case of a patient suffering from carcinoma, whose blood gave a positive Wassermann reaction in the hands of several competent laboratory diagnosticians. On the other hand, Bruggemann, reporting on 175 cases suffer-

ing from carcinoma, found that negative Wassermann reactions occurred in all of the cancer cases' serum if the patient was non-syphilitic.

Rosenberg reviews the work of several investigators who have used the carcinomatous extract as the antigen for a test analogous to Wassermann's. He refers to the work of Ranzi (1906) as the first man to employ this method; but Ranzi's results were entirely unsatisfactory. He likewise mentions the work of Tedeschi who also failed to secure positive results, as did a number of subsequent workers. He then analyzes the recent investigations of von Dungern who reports on the examination of 42 cancer patients' blood in which he claims to have secured positive reactions by the use of carcinomatous extract for antigen. Rosenberg then cites his own experiments undertaken along the line pointed out by von Dungern, in which he also examined 42 cases of carcinoma, controlling his experiments with the blood of 73 persons suffering from other diseases. He concludes from his results that cancer patients' serum gives a complement fixation with alcoholic carcinomatous extract more frequently than other patients do, with the exception of those suffering from syphilis, but positive reactions are not the rule in cancer patients, while positive reactions are only a little less frequent in patients suffering from certain other diseases, and he therefore does not consider complement fixation tests with the carcinomatous extract as antigen, as having any value for the clinical diagnosis of carcinoma.

Sittenfield dismisses this class of tests as of no use in the diagnosis of carcinoma, stating that Wassermann's reaction is occasionally positive in carcinoma, but without diagnostic value, while Wassermann's technic with cancerous extract as antigen gives very uncertain results.

VII. Hemolytic Properties: It was observed a number of years ago (Ewing, Clinical Pathology of the Blood, 1903) by numerous investigators that the serum of carcinoma patients was capable of killing animals when injected into them, their death being accompanied by great destruction of red cells. It has also been shown that the serum of such patients will destroy the normal human blood corpuscles while it is without effect upon the red cells of a cancer patient's blood. In more recent times several investigators have attempted to apply this principle for the diagnosis of cancer; one group of these investigators have followed the lead of Elsberg and injected normal washed human corpuscles under the skin of carcinomatous patients, detecting a few hours afterwards the hemolysis by varying shades of brown, yellow and green areas, appearing on the skin about the site of inoculation. Others have performed their test *in vitro*, using either the normal human blood corpuscles, or, following the modification of Kelling, the corpuscles of a hen, as an index of the presence of hemolysins in cancer patients' serum. Among the results recorded in the more recent literature may be mentioned the following:

Risley employed Elsberg's test which he de-

scribes as follows: Inject five drops of a 20% suspension of washed normal red corpuscles in the subcutaneous tissue of the forearm of the patient; before 12 hours a raised area, varying in color from a brown to a yellowish-green, makes its appearance and disappears on the following day. Of twenty-seven cases of cancer which he tested, only 9 gave a positive reaction while of the 73 patients suffering from other diseases, 15 gave a positive reaction. The author concludes that for the present, at least, the test is without diagnostic value.

Warfield employed Elsberg's test in a group of carcinoma cases but only succeeded in getting positive reactions in one-third and believes the test of little value for the early diagnosis of carcinoma.

Lisser and Bloomfield employed Elsberg's test with the modification that they took the precaution to use only corpuscles which were neither agglutinated nor hemolyzed by any sera *in vitro*. Employing this technic they found that in 62 cases of malignant growth two-thirds gave positive reactions and one-third were negative. In 94 control cases 92% were negative and 8% were positive. The authors conclude that a negative skin reaction is of little value against cancer, but on the other hand, a positive reaction is strong presumptive evidence that the patient is suffering from carcinoma, but they insist that one must only employ corpuscles of certain persons, i. e., corpuscles showing neither sensitiveness to agglutinins or hemolysins in the test tube.

Sittenfield considers the subject of hemolysins in cancerous patients' serum as yet in too unsettled a state for practical use in the clinic.

Gorham and Lisser compare the skin reaction of Elsberg to the reaction of hemolysins *in vitro*; they conclude that the test tube method has little diagnostic value and that there is no relationship between the skin test and the test tube reaction. They found that the skin reaction is positive in 60% of cancerous patients and negative in most other diseases, and they therefore conclude that a positive skin reaction is diagnostic in cancer patients; but that a negative reaction is without value.

As previously mentioned, the test for hemolysins in the carcinomatous patients' blood, *in vitro*, has been attempted, using both human corpuscles and the corpuscles of the fowl. The latter was first employed by Kelling as follows: The patient's serum is heated to 55° C. for 30 minutes, when $\frac{1}{2}$ cc. of it is added to 1 cc. of a 5% suspension of hen's red corpuscles in normal salt solution. The mixture is incubated at 37° C. for one hour, the sensitized corpuscles centrifuged out and washed in salt solution, after which 0.5 cc. of normal active human serum is added together with $\frac{1}{2}$ cc. of normal salt solution. This tube is then incubated for a definite time, which must be previously worked out by the use of controls. At the end of this time the amount of hemolysis is judged and compared to the amount that may have occurred in the controls, containing only inactivated serum and corpuscles.

The same author later writes on the subject and reaffirms the diagnostic value of this test after an experience with 200 cases of carcinoma.

Bruggemann tabulates his findings with Kelling's hemolytic test in 175 cases of which 40 cases were suffering from cancer. He obtained positive reactions in 72% of these latter patients. On the other hand, among the remaining 135 cases of other diseases, positive results were sometimes obtained, but only in a single instance was both Kelling's hemolytic test and Ascoli's meiostagmin test positive in the same patient, while of his forty carcinoma patients Kelling's test was positive in eight alone, both Kelling's and Ascoli's tests were positive in 12, while Ascoli's surface tension test, to be later described, was positive in 9 alone.

Crile finds that cancer patients' serum hemolyzes normal red human corpuscles in a large majority of his cases.

Krokiewicz finds that patients suffering from carcinoma have substances in their blood serum that are capable of hemolyzing normal washed blood cells, if the serum is added in very small amounts. If an overdose of the serum is employed, deformity of the blood cells results without actual solution of them.

Weil, referring to the hemolytic test, *in vitro*, with human corpuscles, as well as Moss, three years later, both state that such tests are of little value in diagnosis.

Krida collected together statistics of 1812 observations made by ten workers on hemolysis of cancer patients' serum tested *in vitro*. Of these patients 472 were suffering from carcinoma, and of these carcinomata cases 67% gave positive reactions. Of those suffering from benign tumors, on the other hand, only 1% gave positive reactions. Of various diseases, exclusive of tumors of all kinds, 509 cases were tested and 14% of them gave positive reactions.

It will be seen from the above references, in tests for the hemolysins in carcinomatous patients' blood, the test by means of a skin reaction using human corpuscles, the test, *in vitro*, with human corpuscles, and the test, *in vitro*, with hen's corpuscles, must each be judged separately; it is not clear from the abstract at hand of Krida's work, valuable though it is, from the immense number of cases tabulated, that he separated the tests made with human corpuscles from those in which Kelling's technic was employed.

VIII. *Antitrypsin Properties*: Brieger and Trebing found that normal blood serum contained sufficient antibodies to inhibit the digestive action of a 1% solution of trypsin on the Loeffler plate in the proportion of 1:3, although in some cases a dilution of 1:6 would accomplish the inhibition, while in such diseases as diabetes and tuberculosis a proportion 1:7 or 1:8 gave the reaction. On the other hand, the inhibiting power of the serum was very much increased in 35 cases of cancer, solutions as weak as 1:10 or 1:20 were effective in the majority of cases. In cases of cancer that had been operated on, the normal ratio was found to be again present. The authors thought this

trypsin reaction may aid in the diagnosis of carcinoma, although not specific in character, but merely denoting the amount of inhibiting power in regard to trypsin. It has also been observed in certain blood affections.

Roux and Savignac describe their technic (which is a modification of the one first employed by the last named investigators) for testing the antitrypsin power of cancerous patients' blood serum. They mix equal parts of milk and 2% agar, filter hot and pour into Petri dishes. One drop of patients' serum is then mixed with 1, 2, 3, 4 and more drops of 1% trypsin and a drop of each dilution placed on the media; they then incubate each for one hour at 50° C., to determine the index which is required to overcome the antitrypsin power of the serum, four drops is the highest normal range and above this is strong evidence of malignancy. They refer to a similar work performed by Müller. Their results are 89% positive of 53 cases of certain carcinoma, and 80% positive among suspected cases of carcinoma. While this reaction is met with occasionally in other diseases, it is usually in cases where the question of carcinoma would not arise.

Shaw MacKenzie calls attention to the antitrypsin condition of cancer patients' blood and believes it to be an aid in the diagnosis.

Pinkuss finds a negative antitrypsin reaction can be depended upon to exclude cancer, but a positive reaction is occasionally met with in diseases accompanied by leukocyte destruction. Positive reactions should therefore only be considered as confirmatory evidence in connection with the whole picture of the case.

Sittenfield, in an article reviewing the various tests that may be of use in the diagnosis of cancer, states that 92% of cancer cases show a positive antitrypsin reaction. Other diseases sometimes give the reaction also, therefore a negative reaction excludes cancer almost certainly, but the contrary is not entirely true.

Frankel, Von der Heide and Krosing report 90% positive results with this test in carcinoma cases.

IX. *Precipitin Properties*: Freund and Kaminer have devised a test of cancer patients' serum and tried it out on 250 patients with positive results in all except 11 cases. In performing this test they prepared a suspension of cancer cells in salt solution, centrifuged them off and effected their solution in acetic acid. They added this extract to the patients' serum, securing a precipitate if the patient is suffering from carcinoma, while the serum of patients suffering from other diseases, or normal patients' serum, remained clear after the addition of the extract.

Sittenfield considers that the precipitin test of Freund and Kaminer has given very encouraging results, and up to the time of his writing, 82% of recorded cases that have been tested by this method have given a positive reaction.

X. *The Meiostagmin Test*: Ascoli discovered a new phase of immunity reaction which is physio-

chemical in nature, and consists in the determination of the surface tension of an immune serum plus its antigen before and after incubation at 37° C. for two hours. He employed the stalagmometer of Traube for measuring the surface tension and by this means was able to determine exactly the number of drops in a given quantity of fluid.

Arzt and Kerl tried out the Meistagmin reaction on three groups of cancer patients with the following results:

399 cases.....83% positive;
100 cases.....93% positive;
53 cases.....83% positive,

while of patients suffering from non-malignant conditions the following results were secured:

548 cases..... 9½% positive;
16 cases.....12½% positive.

Stammiller considers the Meistagmin reaction the most valuable of the several serological tests for carcinoma, and found that 83 of 100 cancer cases gave the reaction, while only 14 out of 140 cases of other diseases proved positive.

Monakow reports reliable results with this test.

Kelling reports that he secured 47% positive reactions by the use of this test in 45 cases of carcinoma, and only in 3 out of 85 cases of other diseases. Some of the carcinoma cases gave the reaction very early in the disease. He further finds by paralleling this test with his hemolytic test, that it is possible to secure a positive reaction, by one or the other, in 80% of cancer cases and in a very small percentage of patients suffering from other diseases.

Kraus, Graff and Ranzi review the work of others in the serological tests for cancer and conclude that most of such tests are of little value, but on the other hand the Meistagmin test is very reliable and in their personal experience only caused error in two out of twenty-six cases.

Leidi reports, that of twenty cancer patients sixteen showed a positive Meistagmin reaction, while of twenty-four patients suffering from other diseases only two gave the reaction.

Stammiller reports on 340 patients with various diseases, including 120 cases of cancer. In the latter he secured 73% positive reactions with this test, while 20% of other diseases gave a positive reaction, but of the latter most of the patients were suffering from diphtheria, scarlet fever or diabetes, none of which conditions would be apt to be confused with carcinoma.

Izar (a pupil of Ascoli) reports on certain technical improvements in this test, which makes it easier and more reliable. He experimented especially with the antigens it was possible to employ. The antigen first used by Ascoli was a crude pancreatic extract, and Izar finds that in addition to this one can employ purified pancreatic extracts by the use of alcohol, ether and acetone. In addition to these a number of substances may be employed as antigen, such as peptone, albumose, trypsin, kasein and kysin.

Kohler and Luger employed this test with a slight modification in the antigen, using the commercial lecithin, which they purified by washing in acetone for twenty-four hours.

Bruggemann secured very satisfactory results with Ascoli's test, but regrets that, owing to the unstable nature of the crude pancreatic antigen, the test is a difficult one. When writing this, however, the author evidently was not familiar with the improvements in the antigen that had been made by Izar.

XI. *Absence of Property Possessed by Normal Serum to Dissolve Cancer Cells:* Neuberg observed that cancer cells in suspension in salt solution are dissolved when they come into contact with the normal human serum, but that this solution does not occur when the same are brought into contact with the serum of cancerous patients. I have been unable to find any reference to the work by others that would tend to prove or establish this claim.

DISCUSSION.

From the above it will be seen that a number of changes have been described in cancerous patients' blood. Some of these, for one reason or another, are not of practical value in the diagnosis of the condition. Notably is this true of changes in the specific gravity, in reaction, in excess of sugar content and the alleged power of such serum to deviate complement.

On the other hand, the anemia, the leukocytosis, the hemolytic properties, the anti-trypsinic properties, the peculiarity of reacting to the Meistagmin test, and possibly the precipitin reaction as well as the absence of power to dissolve cancer cells, are changes that offer hope of assisting in the diagnosis of this condition.

Some of these changes, like anemia, leukocytosis, the Meistagmin and antitrypsin tests, appear to be already well enough established to be of practical utility to the clinician, either in a negative or positive way. On the other hand, the hemolytic properties (and just what method is best to employ in testing such properties), the absence of power to dissolve cancer cells, as well as the precipitin test, while they may later prove of value, are, it would appear, as yet in an entirely experimental stage.

Weighing all of these data and opinions presented by the writers above referred to, it would appear to me that even in our present state of knowledge, the employment of a combination of the better established of these tests would probably give a picture that, in its entirety, would be of much assistance in the diagnosis. The great advantage of tests of the class just enumerated is, that what diagnostic value they have is possessed for carcinoma in any location, while the tests of the gastro-intestinal contents are at best only of use for carcinoma of the stomach, and in carcinoma of other viscera we have been forced in the past to depend entirely upon clinical symptoms.

BIBLIOGRAPHY.

IN MEMORIAM.

Arzt and Kerl, 1911. "Verwertbarkeit der Freund-Kaminerischen Reaktion." (Wiener Klinische Wochenschrift, vol. 25, p. 1817.)

Ascoli, 1910. "Die Meiotagminreaktion bei boesartigen Geschwuelsten." (Muenchener Medizinische Wochenschrift, vol. 57, p. 403.)

Brieger and Trebing, 1908. "Antitryptische Kraft des menschlichen Blutserums." (Berliner Klinische Wochenschrift, vol. 45, p. 1041.)

Brueggemann, A., 1913. "Zur Serumdiagnose maligner Tumoren. Kellingsche haemolytische Proben. Ascolische Meiotagminreaktion und Wassermannsche Reaktion." (Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie, Jena, vol. 25, No. 5.)

Caan, 1911. "Ueber Komplementablenkung bei Karzinom." (Muenchener Medizinische Wochenschrift, vol. 58, p. 721.)

Crile, 1908. "The Cancer Problem." (Journal of the American Medical Association, June, 1908, No. 23, p. 1883, and December, 1908, No. 24, p. 2036.)

Elsberg, Neuhoef and Geist, 1910. (American Journal of Medical Sciences, February, 1910.)

Ewing. "Clinical Pathology of the Blood." (Text-book.)

Frankel, Von der Heide and Krosing. (Quoted by Pinkuss in his article appearing in Berliner Klinische Wochenschrift, vol. 47, No. 51, December 19, 1910.)

Freund and Kaminer, 1910. "Zur Diagnose des Karzinoms." (Wiener Klinische Wochenschrift, vol. 24, p. 1759.)

Gorham, L. W., and Hans Lissner, 1912. "Hemolysis in Vivo and Vitro as Diagnostic of Cancer." (American Journal of Medical Sciences, vol. 144, 1912, p. 103.)

Graff, E. V., and J. V. Zubrzycki, 1912. "Antitrypsin Content of the Blood in Pregnancy and Cancer." (Zeitschrift fuer Geburtshilfe und Gynaekologie, Stuttgart, vol. 72, pp. 253-332.)

Harrington, A. W., and A. M. Kennedy, 1913. "Bone Marrow Metastasis and Anemia in Gastric Cancer." (Lancet, London, February 8, 1913.)

Izaar, G., 1912. "Synthetische Antigene zur Meiotagminreaktion bei boesartigen Geschwuelsten." (Wiener Klinische Wochenschrift, 1912, No. 33, p. 1247.)

Keith, 1912. "Blood in Cancer." (Practitioner, London, vol. 89, pp. 301, 408.)

Kelling, 1911. "Eine Hemolytische Ausfallsreaktion." (Wiener Klinische Wochenschrift, vol. 24, p. 1323.)

Kniaskof, 1911. "Improved Technique for the Anti-Trypsin Test." (Platten fuer die Trypsinprobe.) Medizinische Klinik, January, 1911, vol. 7, No. 3.)

Koehler, Robert, and Alfred Luger, 1912. "Eine Verbesserung der Meiotagminreaktion." (Wiener Klinische Wochenschrift, 1912, No. 29, p. 1114.)

Kraus, Graff and Ranzi, 1911. "Ueber neuere Serologische Methoden zur Diagnose maligner Tumoren." Wiener Klinische Wochenschrift, vol. 24, p. 1003.)

Krida, 1910. "Hemolysis in Vivo and Vitro as a Means for Diagnosis of Carcinoma." (Albany Medical Annals, No. 5, vol. 31, p. 259.)

Krobiewicz, 1912. "Aus dem Gebiete der Krebsforschung." (Wiener Klinische Wochenschrift, vol. 25, p. 264.)

Leidi, 1911. "Die Meiotagminreaktion bei malignen Geschwuelsten." (Berliner Klinische Wochenschrift, vol. 48, p. 1705.)

Lissner, H., and A. Bloomfield, 1912. "Carcinoma Skin Reaction." (Bulletins of Johns Hopkins Hospital, vol. 23, No. 262, p. 353.)

Monakow, 1911. "Zur Serodiagnostik der malignen Tumoren." (Muenchener Medizinische Wochenschrift, vol. 58, p. 2201.)

Moss, W. L., 1910. "Isoagglutinins and Isohemolysins." (Bulletins of Johns Hopkins Hospital, March, 1910, vol. 21, p. 228.)

Newmark, 1912. "The Occurrence of a Positive Wassermann Reaction in Two Cases of Non-Specific Tumors of the Central Nervous System." (Journal of the American Medical Association, January 6, 1912.)

Pinkuss, 1910. "Importance of Anti-Trypsin Reaction in Diagnosis and Prognosis of Cancer." (Berliner Klinische Wochenschrift, vol. 47, No. 51, p. 2330.)

Pinkuss, 1912. "Weitere Erfahrungen ueber serologische Diagnostik, Verlauf und Behandlung des Karzinoms." (Deutsche Medizinische Wochenschrift, vol. 38, No. 3, p. 97.)

Risley, 1911. (Boston Medical and Surgical Journal, July 27, 1911.)

Rosenberg, Max, 1912. "Zur Frage der serologischen Karzinomdiagnostik." (Deutsche Medizinische Wochenschrift, 1912, No. 26, p. 1225.)

Roux and Savignac, 1911. (Archives des maladies de l'appareil digestif, December, 1911, vol. 4, p. 689.)

Stummler, 1911. "Ueber neuere Methoden der serologischen Krebsdiagnostik." (Archiv fuer Klinische Chirurgie, vol. 96, p. 1.)

Stummler, 1911. "Ueber Tumorreaktionen mit besonderer Beruecksichtigung der Meiotagminreaktion." (Muenchener Medizinische Wochenschrift, vol. 58, p. 1945.)

Show MacKenzie, 1911. (Medical Press and Circular, June 19, 1911, vol. 93, p. 663.)

Sittenfeld, M. L., 1912. "New Methods of Diagnosis in Cancer." (New York Medical Journal, 1912, vol. 96, p. 1016.)

Warfield, 1911. "Hemolytic Skin Test for Cancer." (Archives of Internal Medicine, 1911, p. 557.)

Weil, 1907. (Journal of Medical Research, 1907, p. 287.)



Ralph S. Lavenson.

Ralph S. Lavenson, M. D. Born at Sacramento. Attended Sacramento public schools and the University of California. Received the M. D. degree from the University of Pennsylvania in 1902. Post-graduate work at Vienna. A fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania and Medical Society of the State of California; formerly assistant medical director of the Philadelphia General Hospital; assistant demonstrator of pathology in his alma mater; associate in medicine in the William Pepper Laboratory of Clinical Medicine; instructor in medicine Los Angeles Medical Department, University of California. Died at his home in Los Angeles, July 4th, from tuberculosis, aged 36.

Whereas, It has pleased Almighty God in His infinite wisdom to remove from us our beloved Colleague, Ralph S. Lavenson, and

Whereas, In the death of our frater we have lost a colleague who exemplified in his life the noble principles of our profession, and

Whereas, In his loss the members of the Los Angeles County Medical Association have been deprived of a loyal colleague and true friend; therefore, be it

Resolved, That we, as individuals and as an Association, extend our most heartfelt sympathy to the family of our departed brother in their bereavement; and be it further

Resolved, That a copy of these resolutions be sent to the bereaved family; and be published in the Bulletin of the Los Angeles County Medical Association, the Journal of the California State Medical Society, and be inscribed in the minutes of the Association.

SOCIETY REPORT

CALIFORNIA ACADEMY OF MEDICINE.

A meeting of the Academy was held on the evening of July 28th, at which the following program was given.

1. Two unusual Cases of Asthma. H. I. Wiel. Description of Surgical Procedure in one of these Cases. L. Eloesser.

2. The Toxic Effect of Salvarsan. G. E. Ebright. Discussed by L. Schmitt, R. Brooke and Harry E. Alderson.

Refreshments were served at the close of the meeting.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

General Meeting, Tuesday, June 10th.

1. Intestinal Bilharziasis. (Illustrated by Specimens.) Herbert Gunn.

2. Coccidioidal Granuloma—A Case Report. (Demonstration of Specimens.) W. T. Cummins and G. R. Carson.

3. Report of Case of Coccidioidal Granuloma. P. K. Brown. Discussed by Douglas W. Montgomery, P. K. Brown and W. T. Cummins.

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held June 27th at the Dameron Hospital. The following members were present: Drs. C. F. English, J. D. Dameron, H. E. Sanderson, Mary Taylor, B. F. Walker, C. R. Harry, L. R. Johnson, Hudson Smythe, L. Dozier and R. T. McGurk, with Dr. Davison as guest.

A paper entitled "The Laboratory and Its Uses to the Physician" was read by Dr. L. Dozier. The subject is a very interesting one and the paper was greatly enjoyed by the members. Dr. Dozier gave a very excellent résumé of the various laboratory methods and concluded with his own deductions as to the value of each, bringing out especially the value of the Wassermann, and also reminding the members of the advisability of Retinoscopy as a final check in suspected syphilitic lesions.

After the discussion of Dr. Dozier's paper, the society took up the question of the city bacteriologist, of which this city is greatly in need. Every one agreed that time would so emphasize the necessity of this position so emphatically that it would finally be created.

There being nothing more to come before the meeting, the society adjourned, the next meeting to be held the last Friday in September.

R. T. MCGURK, Secretary.

ST. FRANCIS CLINICAL SOCIETY.

A meeting was held on the evening of Friday, July 25th, at which the following program was given:

1. Presentation of a Case of Fistula of Labyrinth (due to tubercle bacillus).

2. Case of Spontaneous Gangrene, or Raynaud's Disease. Dr. W. B. Coffey.

3. Some Observations on the Use of Phylacogens in the Treatment of Surgical Infections. Dr. B. F. Alden.

4. Clinical Observations on the Use of Phylacogens. Dr. W. B. Coffey.

Discussed by Drs. Artigues, Fischer, Bacigalupi, Spiro, Rothschild, Gardner, Hogan, O'Connor, Austin, Wymore, Alden, and Coffey.

Refreshments were served at the close of the meeting.

BOOK REVIEWS

The Diseases of the Rectum and Pelvic Colon.

By Martin L. Bodkin, M. D. E. B. Treat & Co., New York. Price \$3.50.

In these times of deluge of medical books, there seem to be three reasons for publishing things: firstly, to advertise the author; secondly, to keep the publisher's literary pot a-boiling; and thirdly, because the author really has something worth while to give to the world. If only the last reason prevailed we should be spared numerous publications that merely serve to litter the shelves of the too credulous doctor. The book in question seems to be one of this class. It does not fill any long-felt want nor does it tell us anything that has not been told before. We cannot recommend it to the medical profession. A. N.

Wayside Experiences.

A collection of plain tales as heard along the road. By C. Elton Blanchard, M. D.; 246 pages; cloth bound. Price \$1.25. Physicians' Drug News, Publishers, Newark, N. J.

In a genial, pleasant, conversational way Dr. Blanchard has gathered a dozen little tales of the intimate things of life as seen by the physician with a philosophic turn of mind and a certain amount of literary ability. They are agreeable reading; amusing, instructive and occasionally give food for thought. Eugenics, right living, good moral standards, a developed sense of responsibility, are all neatly brought out and constitute the moral that adorns the tale. The time spent in looking through this little book will be thoroughly enjoyed. G. H. T.

A System of Surgery.

In three volumes. By Choyce and Beattie. Published by Funk & Wagnalls. Pacific Coast agents, Stacey & Waite, 405 Van Ness avenue.

This work is one of those that revives one's faith in text-books. The ground covered includes in Vol. I surgical pathology and general surgery. Vols. II and III "are mainly occupied with a systematic description of surgical diseases and conditions, including preparation of the patient for operation and after treatment." The authors are mostly British and there is frequent reference to other authorities, American, German and French. The bibliography is very complete in each section. The illustrations are very numerous and especially those of the pathological specimens are excellently executed, original and instructive. It is also from the point of view of pathology that this work appeals so strongly.

The work does not claim to be and is not a manual of surgery considered from the technical aspect. It is a book in which one finds surgery discussed as a mode of treatment with especial reference to and emphasis on the pathology furnishing the surgical indications; and this is the feature that makes it as valuable and attractive to the student and general practitioner as to the surgeon *per se*.

The chapter on tumors furnishes a very acceptable link between the evidence as derived from the patient and the knowledge elaborated in the laboratory.

The sections devoted to the gastro-intestinal tract are very fine examples of the correlation of the physiology and pathology with the rationale of the surgical treatment.

For those interested in surgery, either as surgeons or as internists, these volumes will richly repay their perusal.

The style is clear, concise and the book is a practical one in every way. G. H. T.

Applied Bacteriology for Nurses. By Charles F. Bolduan, M. D., Assistant to the General Medical Officer, Department of Health, City of New York, and Marie Grund, M. D., Bacteriologist, Department of Health, City of New York. 12mo., of 166 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.25 net.

This little book of 160 pages is very clearly written and should be of great value to any nurse who wishes a general, if somewhat superficial knowledge of bacteriology. It fully carries out its author's intention to give a nurse "a clear conception of the principles underlying her work," which is all most nurses want or require in this branch of medicine, and is easily read and understood. The chapters on the special bacteriology of the various injections go into more detail as to morphology, cultural growth, etc., than most of their readers will understand or be interested in, but those on disinfection, sterilization, and transmission of diseases are thoroughly practical and valuable. The value of the book is greatly enhanced by the numerous excellent and well-chosen illustrations which it contains.

A. W.

The Surgical Clinics of John B. Murphy, M. D. Vol. ii, No. 3. June, 1913. W. B. Saunders Co., Philadelphia.

Contents.

Obturation Ileus: Obstruction Due to Large Gall-Stone in Ileum.

Intestinal Stasis Caused by Band of Adhesions. Paratracheal Tumor—Cystic Adenoma of Thyroid.

Desmoid Tumor of the Rectus Muscle.

Plastic Operation on Ear (Ear Bitten Off by a Horse).

Tenoplasty of Flexor Tendons of Fingers.

Ankylosis of the Jaw. (Interposition of mucous membrane flaps taken from palate and floor of mouth.)

Subcoracoid Dislocation of the Humerus with Separation of Tuberosity.

Fracture of Neck of Femur: Displacement of Head on Dorsum of Ilium.

Fracture and Dislocation of Scaphoid and Semilunar Bones.

Dislocated Semilunar Cartilage Displaced Across Median Line of Joint.

Infectious Granuloma of the Caput Coli—Resection of the Cecum and Anastomosis of the Ileum to the Ascending Colon.

Arthroplasty of the Hip—Trochanter Placed in Acetabulum to Form a New Joint.

Pott's Disease. (The operation of bone-grafting for its cure, as devised by Dr. F. H. Albee, of New York City. A Talk by Dr. Albee at Mercy Hospital.) Clinic at St. Luke's Hospital, Chicago, by Dr. F. H. Albee of New York City.

Procidencia Uteri. (Dr. Murphy's method of fixing the uterus.)

Cholecystitis: Symptomatic Diabetes Mellitus Due to Gall-Bladder Infection.

Clinic Held by Dr. Murphy at Mercy Hospital for the Chicago Surgical Society, March 1, 1913.

Acute Suppurative Prostatitis. (Early drainage into urethra; subsequent leakage through capsule, with infection of the perirectal tissues; Ischiorectal abscess; incision, breaking down partitions between pus-pockets, and drainage; unimpeded recovery.)

Massage. Manual Treatment, Remedial Movements. History, mode of application and effect; indications and contra-indications. By Douglas Graham, M. D., consultant and instructor in massage, Boston, Mass. With a chapter on Massage of the Eye by Dr. A. Darier, Paris. 4th edition. J. B. Lippincott Company, Philadelphia, 1913.

After a long introduction on the history of massage, the author dismisses the "manipulations" of massage in one single chapter, omitting many important technical details. This shows, from the start, that his work is not intended for students or beginners.

As a reference book, it will be of some value to the clinician and to the general practitioner who wants to know if a given condition is amenable to massage, and with what results. The treatise is written somewhat as a panegyric of massage; certain things, which everybody takes for granted nowadays, are detailed at considerable length, while other rather doubtful and questionable results are presented in too favorable a light, and without sufficient clinical evidence. Another weak point of this book lies in the fact, that most papers quoted by the author date as far back as the eighties or the seventies, and there is a lack of information about the more recent literature on the subject. For instance, many men are mentioned in support of gynecological massage, but the names of well-known modern gynecologists are conspicuously absent, from which we conclude that gynecological massage must have lost ground. Similarly, dilatation of the stomach being now considered as often secondary to pyloric ulcer and not as an entity, will seldom be cured by massage alone.

The author is far too optimistic in his views on acute intestinal obstruction and intussusception; we do not mind trying massage of the abdomen once, in these conditions, but if no prompt result follows, we hold that immediate operation is now the rule.

In his excellent chapter on synovitis the author ought to have given to his readers some hints for the detection of tubercular disease so that massage of this condition could be surely avoided. We do not agree with his endorsement of massage in fracture of the patella when the fragments are widely separated, and we think that even a skilful masseur makes a great mistake in trying massage in cases of acute phlebitis. We regret to see that compressed hot air massage is not even mentioned.

The best parts of the work are those on massage in neurasthenia, sprains, constipation, writer's cramp, neuralgia and muscular affections. The author speaks here very convincingly and is backed by a great personal experience.

In our opinion this book will appeal more to the profession-masseurs, in showing them what cases to treat and those not to treat; they may confidently follow the author as a reliable guide in the recognized fields of massage, but they will do well to take some of his suggestions "cum grano salis" and not to expect too much from their skill in irreparable organic diseases, such as valvular disease of the heart, emphysema, locomotor ataxia, progressive muscular paralysis and the like. Assertions that "lobar pneumonia is shortened or aborted" by rubbing the thorax and that "massage of the gall-bladder will aid the 'fracture' of the stones" preliminary to their expulsion, must also not be taken too seriously.

The text is pleasant and full of amusing anecdotes and witty remarks, which make the book very easy reading.

P. C.

Tuberculin in Diagnosis and Treatment. By Francis Marion Pottenger, A. M., LL. D., Medical Director of the Pottenger Sanatorium for Diseases of the Lungs and Throat, Monrovia, California. 243 pages, royal octavo, 35 illustrations, including one colored plate. Price, \$3.00.

In this monograph the author has presented a comprehensive review of the use of tuberculin. The first five chapters are devoted to a consideration of its usefulness from the diagnostic stand-

point. The different methods usually employed are taken up, namely, the subcutaneous, cutaneous, percutaneous and conjunctival. The author has wisely gone minutely into a consideration of the necessity of careful interpretation of these tests. Much confusion has arisen and the value of tuberculin as a diagnostic test has been much belittled because of careless technic, more careless observation of reactions and faulty interpretation of results. That the tuberculin reaction is of great value in the diagnosis of present tuberculous infection, all who have had experience in the intelligent use of it must agree. The value of the test in indicating active disease depends entirely on the intelligence and accuracy with which the observer interprets these tests. The author has emphasized its value in distinguishing between active and latent lesions by means of the time in which the reaction appears. He has properly emphasized, however, the necessity of an intelligent correlation between the physical signs and the reaction. This emphasis is timely. Tuberculin has been discredited as a diagnostic measure, largely because it is being used too much as a short cut to diagnosis by many who have not sufficiently appreciated its limitations or have totally overlooked the well established theories of immunity on which its activity depends. In this discussion it is to be regretted that the author has neglected to consider the value of the intracutaneous test, a method which in the opinion of the reviewer is oftentimes of much greater value than the cutaneous, in that it admits of absolute accuracy in dosage. It is to be hoped that in a future edition of this work the intracutaneous method may have its place.

In the chapters on treatment the author has properly emphasized the importance of individualization in the size of the dose, in the method of increase, and in the interval between dosage. Routine treatment cannot give good results. The difference between the small infrequent dose, popularly known as Wrights' method, and the method of producing immunity by gradually increasing dosage, has been fully discussed. The importance of latent tuberculosis and the duty of the physician to recognize it and not allow it to go on untreated and become active disease, has been called attention to. The importance of this is very great, for on this depends in a very large measure the ultimate eradication of the disease.

It would be impossible in a review to go into the author's discussion of the use of tuberculin in fever cases. The chapters devoted to the subject should be read carefully by every one interested in this subject. It is one of the most complete discussions of the question that the reviewer has yet seen. While we may not entirely agree with Dr. Pottenger in all that he says regarding the causes of fever in tuberculosis; while we may not be willing to accede to his insistence on the importance of enzymes as a chief cause of fever in the advanced case; while we may see great danger in advocating the general use of tuberculin in febrile cases, it must be admitted that he has handled this intricate subject in a most logical way which is very convincing.

The rather delicate question as to whether the general practitioner should administer tuberculin is handled with directness. In as widespread a disease as tuberculosis there must be men in every community who shall qualify themselves to intelligently and safely use this remedy.

The appendix contains the translation of Koch's original papers, which will undoubtedly be of much interest to many readers.

Altogether the author has presented a monograph which is a safe, sane guide to the administration of tuberculin. While an enthusiast in its use, he has shown in the text that he is fully aware of its limitations.

GEORGE H. EVANS.

LANE LECTURES.

The fourteenth course of Lane Medical Lectures will be delivered in Lane Hall, north side of Sacramento street near Webster, San Francisco, on the evenings of Sept. 3, 4, 5, 8 and 9, at eight o'clock sharp, by Prof. Sir Edward Schafer, Professor of Physiology, University of Edinburgh.

Program.

- Sept. 3, 1913, on internal secretion in general.
- Sept. 4, on the thyro-parathyroid glands.
- Sept. 5, on the adrenal glandular apparatus.
- Sept. 8, on the pituitary body.
- Sept. 9, the influence of internal on other secretions.

Methods of Resuscitation. (To be delivered at Stanford University, Cal.)

All the lectures will be illustrated by lantern slides.

Demonstrations and clinics will be held for visiting physicians by the teaching staff of the Stanford University Medical Department throughout the period in which the evening lectures are given.

PACIFIC COAST OTO-OPHTHALMOLOGICAL SOCIETY.

For the past twelve years spasmodic efforts have been made to organize the Eye, Ear, Nose and Throat specialists of the Pacific Coast.

Following Professor Fuch's lectures at Lane Hospital in San Francisco, two years ago, a temporary organization was affected. Through some misunderstanding with the California State Medical Society, the first meeting could not be held as it had been planned. However, in July of this year, the first regular meeting was held in Portland, Oregon, at the Hotel Oregon.

There were some seventy-five registered, of whom thirty were specialists scattered over the entire coast and guests from New York City.

The Eye, Ear, Nose and Throat Society of Portland entertained visiting members very handsomely by giving a smoker the first evening and a dinner and an automobile ride the second evening.

Our retiring president, Doctor Dixon, of Portland, entertained the visiting members at luncheon the first day.

Permanent organization was effected. The society extended its boundary lines to include everything west of the Rocky Mountains and in British Columbia.

The program was excellent in every particular. The entire transactions pertaining to the eye will be published through the courtesy of Dr. Wurde-mann in the Journal of Ophthalmology and every member will receive a copy. In the near future we hope to be officially identified with an Eye, Ear, Nose and Throat Journal.

The next meeting will be in Seattle; date not fixed but probably early in July.

The following officers were elected: President, Clinton T. Cooke, Seattle; First Vice-President, Edward E. Maxey, Boise, Idaho; Second Vice-President, John F. Beaumont, Portland, Ore.; Secretary and Treasurer, Cullen F. Welty, San Francisco.

All members of the present organization will become charter members of the College of Surgeons of America by filling out the blanks that will be forwarded them in due course of time.

C. F. WELTY, Secretary and Treasurer.

FREE BEDS.

Through the kindness of a friend, four beds at the University of California Hospital have been endowed for the care and study of female patients with inoperable cancer. The admission of deserving patients, recommended by physicians, will be considered.

DISAPPROVAL.

To the Editor of the State Journal:

Dear Sir:—I have read with extreme regret some of the editorials which have appeared in recent issues of the State Journal, and particularly wish to protest against the two referring to our State Legislature.

The function of the State Journal is to advance scientific medicine and advance the interests of the medical profession owning the Journal. If medicine is to succeed it must stand on its merits. The profession must be aggressive and emphasize the things for which scientific medicine stands. If the profession desires to enter into politics it should be in a dignified manner. We should put before the public and the legislative bodies the truths about our profession and the aims of scientific and preventive medicine. We should make an earnest and a fair fight to see that the principles which we stand for, as far as they relate to the public and public health, are upheld.

I consider it very unfortunate, however, and exceedingly undignified that two such editorials as the ones mentioned should have appeared in our State Journal; for it being our official organ, they appear as representing the sentiment of the medical profession of this state. I have talked with numbers of men regarding this matter and so far I have failed to find a single one who did not regret their appearance and who did not feel that they misrepresented the State Society.

Sincerely yours,

F. M. POTTENGER.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Emetine Hydrochloride.—Emetine Hydrochloride is the hydrochloride, $C_{30}H_{44}N_2O_3 \cdot 2HCl \cdot 2H_2O$, of an alkaloid found in ipecac. It occurs as a white crystalline powder, soluble in water yielding a neutral solution. Emetine Hydrochloride acts similarly to ipecac but is relatively more nauseant and less emetic, and causes relatively less renal irritation, but more cardiac depression. Emetine Hydrochloride in the form of injections has been reported to be of especial value in amebic dysentery. Emetine Hydrochloride, Merck.—Merck and Co., New York.

Ampules Emetine Hydrochloride, Mulford.—Each ampul contains emetine hydrochloride 30 mg. H. K. Mulford Co., Philadelphia, Pa. (Jour. A. M. A., July 5, 1913, p. 27).

Acne Vaccine.—For description of Acne Vaccine see N. N. R., 1913, p. 221. Greeley Laboratories, Inc., New York City.

Colon Vaccine.—For description of Bacillus Coli Vaccine see N. N. R., 1913, p. 221. Greeley Laboratories, Inc., New York City.

Pyocyaneus Vaccine.—For description of Bacillus Pyocyaneus Vaccine see N. N. R., 1913, p. 222. Greeley Laboratories, Inc., New York City.

Gonococcus Vaccine.—For description of Gonococcus Vaccine see N. N. R., 1913, p. 223. Greeley Laboratories, Inc., New York City.

Meningococcus Vaccine.—For description of Meningococcus Vaccine see N. N. R., 1913, p. 223. Greeley Laboratories, Inc., New York City.

Pneumococcus Vaccine.—For description of Pneumococcus Vaccine see N. N. R., 1913, p. 224. Greeley Laboratories, Inc., New York City.

Staphylococcus Albus Vaccine.—Greeley Laboratories, Inc., New York City.

Staphylococcus Aureus Vaccine.—For description of Staphylococcus Vaccine see N. N. R., 1913, p. 225. Greeley Laboratories, Inc., New York City.

Streptococcus Vaccine.—Greeley Laboratories, Inc., New York City.

Streptococcus Erysipelatis Vaccine.—For description of Streptococcus Vaccine see N. N. R., 1913, p. 226. Greeley Laboratories, Inc., New York City.

Typhoid Bacillus Vaccine.—For description of Typhoid Bacillus Vaccine see N. N. R., 1913, p. 227. Greeley Laboratories, Inc., New York City.

Tuberculin B. E.—For description of New Tuberculin, Koch, Bacilli Emulsion ("B. E.") see N. N. R., 1913, p. 233. Greeley Laboratories, Inc., New York City (Jour. A. M. A., July 5, 1913, p. 27).

Diplosal.—Diplosal is the salicylic ester of salicylic acid, $HO.C_6H_4.COOC_6H_4.COOH$. It is white, almost tasteless and almost insoluble in water. While diplosal is insoluble in dilute acid, it is soluble in alkaline liquids with gradual liberation of salicylic acid, accordingly it passes the stomach unchanged, but is readily absorbed in the intestine. Diplosal may be used where salicylic acid or salicylic acid derivatives are indicated. It is marketed as a powder and in tablets.

Diplosal Tablets $7\frac{1}{2}$ grs.—Each tablet contains 0.5 Gm. diplosal. Merck and Co., New York (Jour. A. M. A., July 12, 1913, p. 121).

NEW MEMBERS.

Villain, Albert J., San Francisco.
Willcutt, Geo. Hayes, San Francisco.
Rose, J. M., San Francisco.
Woodward, R. M. (U. S. P. H. S.), San Francisco.

Smith, Charline R., Los Angeles.
Burrell, H. L., Hollywood, Cal.
Bowen, Fred P., Los Angeles.
Carter, J. M. G., Los Angeles.
Shulman, Leon, Los Angeles.
Weaver, Don Dickenson, Oakland, Cal.
Parrish, Frederick W., Los Banos, Cal.
Jacobson, P. N., Turlock, Cal.
Reardon, F. B., Turlock, Cal.
Julien, E. A., Turlock, Cal.
Kinne, E. F., Atwater, Cal.
Saeger, B. L., Nordhoff, Cal.
Mott, D. W., Santa Paula, Cal.
Ormsby, E. A., Centerville, Cal.
Malone, Wm. M., Oakland, Cal.
O'Brien, J. W., Sacramento, Cal.

DEATHS.

Murphy, Geo. S., San Diego, Cal.
Shoemaker, David, Auburn, Cal.
Miller, Eliza M., Los Angeles.
Horton, W. N., Los Angeles.
Alumbaugh, Wm. E., Napa, Cal.
Sheurer, B. W., Long Beach.
Sisson, Ellet Orrin (address unknown, died in Denver, Colo.)
Sinclair, Jas., San Luis Obispo, Cal.
Brink, H. O., Berkeley, Cal.
French, R. A. (address unknown, died in San Diego, Cal.)
Vandre, Hippolyte, San Francisco.

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PHILIP MILLS JONES, M. D., Secretary and Editor

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be
Typewritten.

Notify the office promptly of any change of address. In
order that mailing list and addresses in the Register may
be corrected.

VOL. XI OCTOBER, 1913. No. 10

EDITORIAL NOTES

A CONSIDERABLE MESS.

At the time of writing, no Board of Medical Examiners has been appointed under the "new" and wonderful law. This brilliant piece of legislation calls for the new board to meet and organize on the first Tuesday of September, which was the second day of that month, but as no board has been appointed there has been no organization, no methods of procedure formulated and nobody knows anything definite as to the status of medical licensure in California. Of the old board, nine members have not resigned and it may be presumed that they are still members of "a" Board of Medical Examiners; but under which law? What is the medical law of this state? Is it the old law or the new law? Why has the governor failed to appoint a new board to administer his new law? It is rumored about that the Attorney General is of the opinion that the nice new law is unconstitutional; it is also rumored that the governor makes no appointments for the reason that as soon as a new board is appointed, certain persons will bring an action in the courts to have the law set aside. Almost every section of this freak law contains errors of omission and commission which our attorney is quite sure are unconstitutional or at least serious defects which can only be interpreted by the courts. The situation is amusingly Gilbertian! Have we a law, and if so, which? Have we a board, and if so, who are the members? How many nice, young, deserving

physician get a license to practice in this state? Dr. F. M. Pottenger, in a few pained words of disapproval because the JOURNAL went on record as considering the law idiotic and those who made it—well, let's say, foolish, (September issue, page 386), said: "The profession must be aggressive and emphasize the things for which scientific medicine stands." Does scientific medicine "stand for" the silly mess in which the medical profession now finds itself? Does Dr. Pottenger approve of it? Can he offer any suggestions which will be of service to our attorneys in clearing up the situation? What is the "sentiment of the medical profession of this state"? Does it approve of the acts that have placed a board of medical examiners and a law regulating the practice of our profession, one of the most dignified of all human callings, in this comic opera situation? Is the humiliating condition of things at the present time such as to fill the members of our profession with pride at the intelligent (!) manner in which this mess has been brought about? The JOURNAL most respectfully refers a few of these queries to Dr. Pottenger for his thoughtful consideration.

LABOR AND "PATENT MEDICINES."

With the statement that it is "From the United Labor Journal, March 1, 1913," comes a reprint of a short article, "Patent Medicines Proven Good." "United Labor" certainly is a traitor to the best interests of the laboring man, for it is just that class—the poor and the very moderately well-to-do laboring class—that make rich the patent medicine manufacturers. What sort of an influence can such a paragraph as the following have upon the not-too-well-able to think laboring man who might better spend his few dollars for more air or food than for an expensive mixture of alcohol and coloring matter and some worthless vegetable stuff of evil taste:

"If the records could be compiled, that is to say, were figures available for such records, it would be shown that patent medicines are the greatest safeguards to the health of the nation, and that they do more to stave off sickness and prevent epidemic than any other element brought out of the chaos of experiments by science."

It is the laboring class of all others that should protect itself from the wastefulness of patent medicines and from the danger of poor and incompetent physicians. The laboring man needs his health and strength in order to make his living; when he cannot work he is not paid and therefore he is the very man who should receive the very best medical advice when he is injured or is ill in order that he may the sooner get back to his earning capacity. It is the laboring class and the poor who make the quacks rich and build palaces for the patent medicine manufacturers; and yet they will not wake up and help stop it and they are led astray by their own publications! One is tempted to believe that our old friend, Mr. Barnum, was at least partly right.

IS THE CLINICAL CONGRESS AN UNMIXED BLESSING?

Next month there will be held in Chicago another of the huge clinical congresses of surgery and undoubtedly the attendance will be large, not an inconsiderable percentage of those attending coming from the smaller cities and towns. Are these "clinical congresses" altogether an unmixed blessing and wholly desirable? Is there not a considerable element of danger? Many very able and skillful surgeons will perform remarkably delicate operations in a manner and with an ease that are totally deceptive; it looks very easy to do some particular thing when one watches an expert with apparently no effort and with a rapidity that still further adds to the illusion, perform his operation. Will not many a man who lacks ability to handle his fingers, to say nothing of the mechanical brain behind them, go home and try to do that same piece of work that looked so easy when he saw it done by the expert at the "congress"? There is a tremendous gap between the ability of the expert and that of the average man and we must remember that in our work it is not merely some material and time wasted in a failure—it is life or health, and these cannot be lightly considered.

FRIEDMANN AND THE PRESS.

When the notorious faker, Friedmann, landed in New York with his pet turtle and his press agent and the local medical society did not reach out and grab him to its scientific bosom and pronounce him the greatest man in the world, the newspapers of the country, almost without exception, took occasion to say nasty and disagreeable things about the smallness and narrowmindedness of the medical profession and the jealousy of physicians. There was a deluge of such editorial articles; every medical gentleman who kept silent, criticised or merely said "let us wait and see," was written down as jealous of his great and good rival in the realm of scientific medicine, Friedmann. It was pitiful, but so good was the press-agenting that nothing could be done—the newspapers simply ate up the copy about Friedmann and roasted the physicians of the country in general and in particular. After awhile they awoke to the fact that they had been victimized into printing millions of dollars' worth of advertising—for nothing! The bubble burst and the papers then published editorials condemning Friedmann and his turtle and deploring the whole incident of fooling the people. Such expressions as "The fiasco is pitiful," "confidence not warranted," "thousands of pitiful victims" became quite common. But one thing is peculiar; no single paper, so far as we know, took the trouble to call attention to the fact that they should all apologize to the medical profession they had so recently insulted and abused! No paper, so far as we are aware, published one word of regret for its previous condemnation of physicians who were merely cautious.

PLAGUE IN SQUIRRELS; AND RABIES.

The *Wisconsin Medical Journal* refers to "The quiet, persistent fight which is being made to protect us all from plague" by fighting the infected ground squirrels here in California. Indeed, so quietly does the work go on and so long is it since anything has been heard of it, that even we here in the state have almost come to forget that it is going on. And truly is it said that it is a fight "to protect us all from plague," for the danger is no more to us here in California than it is to those in the country east of us. During the week ending August 16th, 1913, plague infected squirrels were found as follows: Alameda County, 2; Contra Costa County, 12. Whether the effort to eliminate entirely the ground squirrel, to destroy him and his plague utterly and completely, will ever be successful, it is hard to say. The problem is an enormous one, but the possibility of accomplishment by persistent human endeavor is also enormous; and some progress is being made. In the meantime rabies continues with us and increasingly so; during the week ending August 30th there were reported 1 case of feline rabies in San Francisco, 8 cases of canine rabies in Oakland and 1 case in Alameda. It is also learned that in the past couple of months at least a dozen Pasteur treatments were sold by a single dealer. Yet dogs and cats run at large and one almost never sees a dog with a muzzle on! As a people, we certainly do seem to like to take big chances of getting into trouble.

THE RISE OF THE OSTEOPATH.

During some of the discussions of laws and things while the legislative session was on, it became necessary to compile the results of the working out of the law of 1907 as applied to the Osteopathic applicants for license; it will be remembered that under that law they had to take the same examination that was given to graduates in medicine. The fact that improvement in instruction in osteopathic schools resulted is quite evident from the figures which here follow:

Results of Examinations, December, 1907-December, 1912 (inclusive).

Date.	Passed.	Failed.
December, 1907.....	0	4
August, 1908.....	0	4
December, 1908.....	1	2
April, 1909.....	4	1
August, 1909.....	10	7
December, 1909.....	8	8
April, 1910.....	13	3
August, 1910.....	22	9
December, 1910.....	15	13
April, 1911.....	8	4
August, 1911.....	23	15
December, 1911.....	16	19
April, 1912.....	9	5
August, 1912.....	24	11
December, 1912.....	20	20

Totals.....173 125—298

"THE HEALTH HOSPITAL ASSOCIATION."

This is a new one in San Francisco and it not only wants to get members who shall pay "Two Dollars (\$2.00) for and as an examination fee * * * and fifty cents membership fee * * * and thirty-five cents per week or \$1.40 per month * * * or \$15.00 for one year, in advance" but this goes some of the others a little better. This Association also wants to sell stock at \$100.00 per share to trusting and confiding physicians! The "member" gets the usual form of contract to give him medical and surgical care and dental care as well, and all that sort of thing, and in the end the "member" gets just what he pays for—medical care at the rate of "thirty-five cents a week." Why will physicians permit themselves to be used by these concerns? It is hard to say; if all physicians would refuse to have anything to do with them, they would cease to exist. But then, if everybody did everything that he should do, we would have no need for legislatures or laws or courts or jails or little trifles like that. It looks like plain old human nature, again! One interesting thing in connection with the "Health Hospital Association" is the type line at the bottom of the application form and also of the contract form. At the bottom, in small type, are, respectively, "Form 14. C. Co., N. Y." and "Form 15. C. Co., N. Y." It looks as though these blanks are a regular stock form gotten up by some New York concern for the use of these many mushroom "Health Associations" that spring up all over the country.

"CONCERNING COURTESY."

A little leaflet with that title was issued by the Lackawanna Railroad for distribution to its agents, conductors and representatives who come in contact with the public. Who wrote it is not known, but it certainly ought to be studied by everyone who comes in contact with the public or with any number of people.

"The principle that underlies courteous treatment of others is simply that of doing unto others as you would they should do unto you."

"Words are only one means of expression and *manner* is quite as important; therefore remember that a kindly and gracious manner is not only the sign and mark of a self-respecting man but is to your words what oil is to machinery in making them move effectively to their purpose."

"True courtesy is no respecter of persons. It remembers that 'a man's a man for a' that,' and gives the civil word and the helping hand quite as readily to the illclad stranger as to an official of the company."

"Courtesy is not only something the public have a right to expect of you but it *pays*."

What has this to do with medicine? Much, if you just think of it and see the physicians about you who are well liked and successful in "holding their families"—and those who are not. One sees many a physician who is a failure and a nuisance to himself because he could not understand that "courtesy pays."

POETIC RECOGNITION.

In a poem entitled "The Marriage of the Seas," by Stephen Phillips, which appeared in a recent number of a popular magazine, is a verse quite unusual in that it sings the praises of medical science and of sanitation in the work of digging the big canal.

"Nor hast thou played, America, this part
Alone in conflict, but in healing art,
Since thou didst gird thyself a foe intense
To vaporous poison, and to pestilence;
And to the fatal fly with baleful breath,
That bears on gaudy wings the buzzing death.
That air that once was mortal now is pure,
And Eden rose a garden sweet, secure
Where Goethals wrought in energy aflame,
Let Gorgas raise an equal plea for fame;
Who from the pest house and the evil fen
Conjured a breathing paradise for men."

It certainly is a great pleasure to see that public recognition is being given to the monumental work of scientific medicine at Panama; slowly but surely the people are beginning to learn that the canal has not been dug by steam shovels and by dynamite, but by the quiet work of scientific medicine, the work that turned one of the pest holes of the world into one of its healthiest spots, and, by making it possible for man to live there, made it possible for Goethals to dig his ditch. All the engineers and all the enormous machinery for moving earth and rocks that they could invent and build would never have dug the canal; scientific medicine dug the Panama Canal.

**IF YOU MOVE
SEND US YOUR
CHANGE OF AD-
DRESS AT ONCE.**

ORIGINAL ARTICLES

DERMATOLOGICAL CASE REPORTS.*

By HARRY E. ALDERSON, M. D., San Francisco.

Circinate Eruption of the Tongue. This benign condition is described by many writers. The lesions consist of spreading circular or oval areas on the dorsum or sides of the tongue in which there is more or less desquamation. At times the center of an area will appear to become like the normal tongue surface, and occasionally new patches may begin on this surface, thus forming a patch within a patch. Thus two or even three concentric circles may form, the "iris form" (Pusey). The case reported here shows very plainly definite etiological factors which may be of interest:

The patient, Mr. L., a young Swede, rather thin and pale, presented (January, 1911) an irregularly oval lesion of this condition on the right border of his tongue. The lesion was about 50 millimeters long, and 12 millimeters in width at its widest part. It encroached slightly on the dorsal surface of the tongue. Similar lesions had been appearing off and on for about a year, showing a growing tendency to become more pronounced and more persistent. At times the lesions would appear far back on the tongue and at other times towards its tip, always favoring the borders. The patient was subject to much gastro-intestinal trouble, was usually constipated and his tongue was always more or less coated. His sedentary occupation (clerk in an auditing office) and his habit of eating badly chosen and improperly prepared food (such as salt meats, fried foods, pastries and sweets) hurriedly every noon at inferior restaurants, were responsible for his digestive troubles as well as for his generally impaired health. He was of a nervous temperament and worried greatly, thereby aggravating his condition. His tongue condition always grew worse when he had indigestion. At these times he felt greatly depressed and his stools were soft and had a foul odor. The tongue condition was a sort of indicator with him, for when the patches began to appear he always found that he was unable to do efficient work and he lacked reserve force. It was impossible to keep him on a rational diet because he lived at a poor boarding-house and lunched at cheap restaurants of the "hash house" type. Always when he would indulge too much in such things as ham and pastries, his tongue condition would become greatly aggravated. During the Christmas holidays, when he forgot his diet list completely and ate freely of the forbidden foods (in addition to working extra hard at the office), his tongue was in a bad state, and these "benign plaques" were quite angry looking. His habits excepting those mentioned were excellent. He was constantly urged to adhere to the diet carefully outlined for him and various recommended therapeutic measures were tried. He received more benefit from a mixture of nitromuriatic acid, nux vomica, and essence of pepsin than from any other medication. While under this treatment the patches did not recur so often and were less pronounced. At times sulphur given internally seemed to help him. Arsenic had no effect on his condition. Locally sulphur (as recommended by Unna) was tried without success. Tincture of iodine, tincture of myrrh and various astringent mouth washes all failed to do any good locally. In fact, every local measure recommended by the various writers was tried.

The patient was ordered to take more exercise. He joined an athletic club, became actively interested in cross-country walks, which he took every week end, and systematically carried out daily exer-

cises at the gymnasium. After a period of five months of steady systematic work of this kind, his general health was markedly improved; his digestion was perfect, and he gained some weight. His tongue cleared up almost completely. At the present time (April, 1913) the patient has a perfectly normal tongue and it has been so for several months. It is perfectly clear that in this case the recurrent circinate eruption on the tongue was due to chronic disturbances of digestion.

Arsenical Pigmentation and Keratoses. The subject of this report, whose photographs are shown herewith (Case 13,632, Stanford University Medical Dept.), is a man 27 years of age. He presents a universally deeply pigmented skin. Scattered thickly through this dark brown skin are many pinhead to pea sized, round, whitish spots, which the patient states represent the original color of his skin. The skin in these spots is of the same texture as that on most of the rest of the body. The pigmentation, which is quite pronounced, is found also in the buccal and the anal mucosa. As would be expected, the areas that are normally dark, are much more so in this case. The skin of the palms and of the soles is excessively thickened, and in both these regions there are numerous prominently raised keratoses. Scattered over the face (and even on the eyelids) and also across the shoulders, there are numbers of small projecting keratoses, some of them almost horn like.



Showing a great thickening of the palms with a few keratoses.

This interesting condition followed the steady taking of arsenic for a long period. The patient originally had psoriasis of over ten years' standing. He began taking arsenic five years ago, on the advice of his physician (in Russia), and has been taking it steadily ever since. The psoriasis completely disappeared, and he has not had a recurrence for over three years. He took the drug in the form of the Asiatic pill. His arsenic intake for the five years was as follows:

First year—3 pills daily (No. 1 formula, each pill containing 0.004 of arsenious acid).

Second and third years—15 pills daily (same formula as before).

Fourth and fifth years—15 pills daily (No. 3 formula, each pill containing 0.001 of arsenious acid).

General examination showed the patient to be in

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

* From Skin Clinic, Stanford University Medical Department.

good physical condition. No abnormalities of any of the organs, excepting the skin, were discovered. The blood count was interesting. It showed:

4,350,000 red blood corpuscles;
78% hemoglobin;
6400 white blood corpuscles;
32% polymorphonuclears;
57% lymphocytes;
5% large mononuclears;
5% eosinophiles;
1% transitionals.

It is much regretted that several blood examinations were not made. The patient went into the country to work before this could be done. He will return to San Francisco this Fall, however, and his blood conditions will be thoroughly investigated.

A thorough neurological examination by Dr. Schaller disclosed no abnormal conditions in the nervous system. Special examinations in the Eye clinic by Dr. McKee, and in the Nose and Throat clinic (Dr. McNaught), revealed no abnormalities in eyes, ears, nose or throat. Slight dryness and redness of the nasal mucosa was noted in the latter clinic.

Alopecia Areata Caused by Nervous Shock. Mr. P., age 40, a successful business man of large af-



Showing great thickening of soles
with numerous keratoses.

fairs, extremely busy and under constant nervous tension, but in excellent health, was in an automobile wreck. He sustained a broken arm; his wife was severely bruised and suffered a fractured clavicle; and one member of his party was killed. The patient, Mr. P., suddenly had a large patch of alopecia areata come in the occipital region, occupying an area about three inches in diameter—three weeks after the automobile accident. Causes other than shock were fairly definitely excluded—there being no abnormalities in the teeth, no disturbances of the special senses, and the patient's general physical condition being excellent. It is difficult to avoid the conclusion that in this case severe nervous shock was the cause of the alopecia areata. The bald patch cleared up completely in one month. An ointment for local use was prescribed, but the patient never used it. Had he

done so, his prompt recovery possibly would have been attributed to the treatment. Similar experiences are met with occasionally by every physician. It is difficult to properly judge the effects of treatment in a disease which is so variable in its course as alopecia areata.

Hydroa Vacciniiforme or Recurrent Summer Eruption. F. T., an unmarried man 25 years of age, follows the healthful vocation of a "cow puncher" and general utility man on a ranch in Idaho. He is in perfect health with the exception of his skin affection. This has been present off and on since childhood. When first seen (October, 1911) he presented numerous small, irregularly shaped scars, resembling those seen after severe variola, scattered over the exposed parts, especially the chin, nose, cheeks and hands. Since early childhood he has been having recurrent attacks of a vesicular eruption which soon becomes crusted, and after a variable period this subsides, leaving permanent scars like those seen after smallpox. These attacks are much worse in the Spring, but are always apt to occur when there is an increased amount of sunshine. Exposure to the sun seems to be necessary to provoke an attack, and extremes of temperature have no influence. The patient thinks that the heat of the sun is the most common exciting cause. It is more probable that it is some other quality of the sun's rays that affects him, for at one time for five months while he was running a donkey engine daily, the affected areas were much exposed for long periods to the heat from the fire without producing the least sign of skin trouble. Attacks have appeared during the early Spring when snow was still on the ground and the air was quite crisp with the sun shining brightly every day. These attacks never appear during the periods when there is no sunshine. When he protects his hands by wearing gloves, those parts are not affected by the sunlight. It would be very desirable of course to have him protect his face; but that is out of the question. Either the wearing of a veil or the liberal use of a protecting powder to keep out the actinic rays, would be a dangerous practice for a cowboy. It would invite certain ridicule and probably violence on the part of his associates. It is an interesting fact that during his two visits in California, although he was much exposed to the sun (during the Fall and Winter), his skin was entirely free. Last year he was instructed to use an astringent alcohol lotion and alum freely to toughen his skin for a period of several months before the change of seasons. In the following Spring his attack was much less severe than ever before. However, it is difficult to say what influence the treatment had on his condition. It must be borne in mind that this tendency of the skin to develop these lesions shows an inclination to disappear before the adult age is reached—and this patient is twenty-five years old. His freedom from the eruption while in California, where he was much exposed to sunshine, is interesting. Possibly in the high lands of Idaho there are peculiar atmospheric conditions, in addition to the altitude, which render the effects of the actinic rays of the sun more pronounced.

THE EFFECT OF COMPETITIVE ATHLETICS ON SCHOLARSHIP.*

By H. D'ARCY POWER, M. D., San Francisco.

Two years ago the State Medical Society of California appointed a committee to investigate the effects of athletic training in the high schools and universities and made me a member thereof. As my colleagues were devoting themselves to a consideration of ultimate physical effects I thought it might be a useful division of labor if I concentrated on a study of the mental side of the question, this paper is the result and is in fact an expansion of my sub-report, dealing also with some points that are perhaps a little outside of the direct scope of the authorized inquiry and presenting opinions for which I alone am responsible.

That I may the better present the matter I propose an attempt to answer the following questions:

1st. Is the expenditure of public or quasi public money for higher education authorized or intended for any other purpose than the cultivation of the mind and the acquirements of knowledge?

2nd. Is it necessary or desirable that in order to obtain such intellectual ends physical culture be a part of the curriculum?

3rd. If physical culture be desirable is the method of training a part of the student body in competitive athletics a proper form of such training?

4th. What is the ascertained effect, as seen in scholarship, and life, of competitive athletics in high schools and universities?

It seems scarcely necessary to ask the first question. That the public in paying for high schools and universities, and private munificence in endowing the same makes such expenditures for the sole purpose of affording opportunities for the cultivation of the mind, would appear self-evident. Legislative enactments and endowment deeds alike plainly state such to be the fact. These institutions neither exist for their own glorification, for the benefit of any group of individuals, directly or indirectly, nor for any material or social benefit to their alumni that is not the direct product of intellectual culture and efficiency. If it is possible for Prof. John J. Stevenson of N. Y. University, after forty years' association with his subject to write, "The average professor in our larger colleges is hardly so important as the football or rowing coach," then surely there is some need to bring home to those responsible for their management that misdirection of public funds is as criminal in one branch of the public service as another. When it is possible for a college to spend nearly as much on advertising and other expenses (\$13,000 against \$17,000) as on the payment of its teachers, the time has surely arrived when we can no longer accept right ideals and action as probable conditions. And just for this reason we must insist, to quote the writer mentioned, that "Real

colleges and universities should come to an honest recognition of the fact that they were founded to produce mental, not physical, athletes; college authorities and they alone are responsible for the common belief that, in college, intellectual work is less important than physical."

The second question, namely, whether physical training is necessary to a realization of the full efficiency of the mind is a question of many sides. The old ideal of a "Mens sana in corpore sano" has its limitations. What is a healthy body in reference to a given mind? Is it necessarily a muscular body? Does biography show any special relation between high physical and mental development? What percentage of the great ones of the earth were muscular or even healthy? I am not ready to offer statistics but I have a strong impression that an appeal to history could give slight support to any close association of intellectual and muscular development to the benefit of the brain. If we turn the question over to physiology and psychology certain interesting questions will present themselves. Here are a few:

What role does the muscular system play, in the life of the organism, and the development of the brain?

It is to be remembered that the muscles contribute more than half the mass of the body. Variations in their conditions or bulk lead to fluctuations in energy production and chemical changes that affect every cell in the organism. We are too much inclined to think of muscles solely as part of the machinery of motion, but it is to be remembered that we are warm blooded animals compelled to metabolise a given quantity of food per day to maintain our temperature and that the muscle is the chief agent in such fuel burning. Ergo, shrunken muscles mean defective heat production and possibly transference of the function to cells that normally are devoted to other purposes involving, in its train, general malnutrition. From this viewpoint a defective musculature must also involve neural elements. But musculature stands in another and even closer relation to the nervous system. Most of the neuron cells of the cord and a large proportion of those of the brain are directly concerned in inhibiting or controlling muscular movements. Without functional use their nutrition is not maintained and analogy would require us to expect that adjacent areas devoted to sensory or psychic uses, participating in a common blood supply are likely to suffer by reason of their contiguity.

We have excellent clinical evidence to this effect in the experience of the prison at Elmira, N. Y. It is part of the reformatory activities of that excellent institution that the unfortunates committed to its care shall receive instruction during their incarceration, fitting them for useful service in later life. It was found in the case of the undernourished, muscularly defective, slum raised prisoners such efforts were fruitless. They neither had the desire nor the capacity for the simplest instruction; but, after a course of physical training, with the growth of the body appeared the ability

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

to profit by mental training. So much for the affirmative side of the proposition.

There can be no question as to the desirability of a fairly developed muscular system, kept in reasonable activity, both for its effect on the organism as a whole, and the brain in particular. It is, however, to be observed that in considering the classes with which we are dealing, namely, the students of high schools and universities, cases of muscular deficiency such as those encountered in Elmira are very rare. The disadvantages of excessive musculature are many. To begin with, the musculature constitutes the mass of the body. The very idea of health implies balance. To overdevelop or overexercise any one part of the organism is pathological, as Professor Lee, of Columbia University writing on this subject says, "Physiology teaches that fatigue of one tissue from overuse means fatigue of all tissues. Extreme activity of the muscular system involves not only lessened muscular, but also lessened mental activity." But the overuse of the muscles means more than diversion of energy. It implies cardiac strain with its secondary effects, most important of all it involves flooding of the system with myogenic katabolites, and that these are poisons the fatigue phenomena of muscle tissue amply prove.

There is every reason to believe they are no less deleterious in their action elsewhere and particularly on the sensitive brain cells. Prof. Prouty, of the University of Alabama, in a letter to me, speaking of the effects of athletic training on mentality, says of the students that they show "Inactivity of all mental power, due to clogging of the system." Dr. J. S. Ames, director of the physical laboratory of Johns Hopkins University, on the same subject says the training team "seems to be stupid." The mass of evidence I shall presently offer of scholastic deterioration under athletic training tells the same story of intoxication of the higher centers.

Yet another phase of the question, one of the first importance to educators, is concerned with the existence of mental types and their quite different relationship to physical training. Psychologists divide minds into motor and sensory. Let us see what this means. The nervous system responds to stimuli and mental activity is always dependent thereon. The effects of stimuli are conditioned by the inherited structure and acquired modifications of the mind. A stimulus reaching the sensorium may be dissipated amongst the cells concerned in receiving impressions and ideas, a condition in which the stimulus lingers in the brain, awakening memories, provoking comparisons, and having as its product reflective thought. Or, the stimulus may tend to immediately discharge itself through motor channels. Its result is an action. The first type of mind is called sensory, the second motor. Of course, all minds functionate in both ways; but the tendency to react preeminently in one or the other manner is deeply laid and leads essentially to different types of individuality. Dr. J. Mark Baldwin, of Princeton University, has so excellently sketched the characteristics of the motor type in his "Story of the Mind" that I

cannot do better than quote him. Speaking of such an individual, he says:

"The suggestions which take hold of him translate themselves very directly into action. He tends to act promptly, quickly, unreflectingly. Generally such a person is said to jump at conclusions; he acts in some way on all events and suggestions, even when no course of action is explicitly suggested, and even when one attempts to keep him from action."

Psychologically such a person is dominated by habit. This means that his nervous system acts, either by its hereditary tendencies, or by the undue prominence of certain elements in his education (please note the statement 40 p) quickly in the direction of motor discharge. The great channels of readiest outpouring from the brain into the muscles have become fixed and pervious; it is hard for this process once started in the sense centers, such as those of sight, hearing, etc., to hold in their energies. They tend to unstaple equilibrium in the direction of certain motor combinations, which in their turn, represent certain classes of acts. This is habit; and the person of extreme motor type is always a creature of habit. Speaking of temperament Prof. Baldwin says, "In all his social dealings he is more or less domineering and self-asserting. He seems to be constantly compelled to act so as to show himself off. He has a suggestion to make for every emergency, a line of conduct for each of the company, all marked out or supplied on the spur of the moment by his own quick sense of appropriate action; and for him as for no one else, to hesitate is to be lost." While so ready to act the writer quoted states that "such a scholar is very poor at noting and remembering directions." They possess fluidity of attention. "By fluidity of attention I mean the state of hurry, rush, inadequate inspection, quick transition, all too ready assimilation, out of one ear and in the other habit of mind. His attention is always flowing, always leaping from 'it to that' with supreme agility and restlessness. But the exercise it gains from its movements is its only reward. Its acquisitions are slender in the extreme. It is extremely difficult for a scholar (of this type, H. D. P.), then, to give continuous attention or adequate attention to anything of any complexity. He assumes facts which he does not understand, and goes right on to express himself in action on these assumptions. When such a student has gone through a preparatory school without overcoming this tendency to fluid attention, and comes to college, the instructors in the higher institutions are practically helpless before him. We say of him that he has never learned to study, has no power of assimilation. The embarrassment is the more marked because such a student is willing, ready, evidently receptive, prompt and punctual in his task." I have quoted Prof. Baldwin thus fully, because it leads to the following conclusions:

- 1st. A large number are born with a natural inclination to motor activity, and a corresponding disability for correct or continued mentation.

- 2nd. That the condition is an example of in-

herited habit and like all habits becomes intensified by use.

3rd. That habit expresses itself in automatic action, and, just as actions become automatic they exclude the higher mental activities.

4th. The motor type thus judged from the standpoint of potential intellectuality is a lower type representing qualities that were invaluable in primitive society, but of diminishing importance in the world of to-day.

I would, therefore, be inclined to answer question two as follows: reasonable muscular development and activity is necessary to the attainment of a physiologically balanced organism, and muscle training within limits is conducive to brain development. But there is no evidence that the mass of high school or university students are so underdeveloped or lethargic as to call for special provision in this direction. If such were the case it would demand an organization of physical training as an integral part of the curriculum from which none should be exempt.

Question 3. Admitting that physical training is desirable, though not indispensable, is competitive athletics a proper form of such training? The first point to be observed is that competitive teams are recruited from a small part of the student body. Let us ask what part. From the poorly developed who need and would be benefited by exercise or training? We opine not. Such material does not provide the sinews of war. Do they represent the sensory type of mind, with its tendency to excessive introspection, suspended judgment, and slowness to act; whose possessors even when muscular would be benefited by the training of the campus? Again we opine not. The man who takes to competitive athletics as a duck to water is the individual of motor type, whose energies constantly bubble into muscular action, naturally acts on the spur of the moment. He of the fluid attention, who never learns to study. To such men competitive athletics is as easy as mental work is hard. But they not only do not need training along these lines, all such training tends to further fix their unfortunate natural tendencies. The athlete must act, not think, so the greater the perfection of their technic the more automatic the working of their minds. Competitive athletics train the wrong men, physically and mentally. The view here propounded that the man who goes in for exercise is by nature averse to study is not only based on the psychological principles set forth but is supported by the observation of the majority of teachers. In answer to a questionnaire (to be described later) sent by the writer to all the universities of the U. S. and largest high schools of California this view was supported by sixty per cent. of the replies. As Professor Holt of Harvard writes, "the athletes, of course, are not the students. The trouble is that the athletes do not study, but also they are the men who, anyhow, would not study." Prof. M. Herzberg of South Dakota University writes, "on the whole from personal observation I feel that our athletes do not represent our highest class of students," and Pro-

fessor Boggsteller of Harvard doubts whether the men who make poor marks while training would do much better at any time. Both theory and practice compel me to agree with Professor Stevenson of Columbia University, who writes, "Intercollegiate contests of all sorts should be abolished; the great stadia should be abandoned or converted to some useful purpose; courses in gymnasia should be compulsory for all students; athletic fields should be opened for use of all and exercise should be encouraged."

Question 4. We now arrive at what is perhaps the crucial question of this enquiry—What is the effect of competitive athletics on the scholarship of those therein participating? In attempting to answer that question my first idea was to proceed along the same lines as would be followed in an inquiry as to physical results—namely, to apply psychological tests before, during and after training. But difficulties were soon discoverable. It is self-evident that nothing but a large body of data covering many institutions would have any value, and an examination of the literature of the subject showed that such data were not available. As Professor J. Peterson wrote to me later, "There should be made careful tests of general mental ability and of specific powers. The average per cent. of all college graduates not in athletics should be correlated with those of graduates who have been in athletics (the extent of such activity to be figured with) by methods explained by Thorndyke. This means an enormous amount of work which should cover say ten years. Even then this would not show any influence of athletics on mental ability; but only any relation existing between the two, e. g., low or high ability might have a tendency to take to athletics. The study to have much value should be extensive, but it is doubtless worth while." Furthermore, psychological tests unless made by experienced workers are likely to lead to very fallacious results. To test powers of memory (ratiocination, attention or volition), is a very different affair to recording blood pressures, pulse rates or muscle reactions. Even if I could enthruse a sufficient number of university psychologists to undertake the work some years must elapse before I could summarize a report of any value. Under these circumstances it occurred to me that a consensus of opinion of the majority of the men directly concerned in teaching college students must have a value not easily impugned. I realized that the personal equation might disturb results. I found out later that another element was present, of which more later; but taken all in all, I believed that a carefully prepared questionnaire directed to all the universities asking for information based on personal observation, not opinion, should give me the required material. I am glad to find that in thus turning to the results of scholastic experience I am supported by no less an authority than Professor E. B. Hall of the Department of Psychology of Harvard, who in a recent letter to me writes, "Is it not clear that the laboratory for this topic is the athletic field and the class-room? The conditions are there at hand, and the results have only to be read off from the college records.

The administration officers of almost any college have an opinion of some value on athletics and scholarship, and the consensus of such opinions would be the best guide, as I think. It seems to me that laboratories are too highly exalted, and that the matter of athletics and scholarship is one that from its very nature is distinctly not adapted to laboratory examination." I deemed it best to confine my questions to a few definite and easily understandable points, framed in language that the average instructor, not a psychologist, would comprehend. I wished to know whether the stress of training affected scholarship and whether temporarily or permanently, whether athletes were by nature poor scholars, whether morals were improved or lowered, and whether the change referred to change of ideals or alteration in power of restraint. I prepared the following post-card questionnaire.

The Committee on Athletics of the State Medical Society of California will be obliged by an answer to the following questions, based on your personal observation. (Kindly return answer within a week):

- 1—Have you found students excessively addicted to athletics disinclined to or incapable of intellectual effort?
 - 2—Do students that have passed through a period of athletic training show any falling off in the quality of their college work?.....
For how long?.....
 - 3—If so, what is the effect on
Memory
 - Concentration
 - Reasoning
 - Will power.....
 - 4—Have you noted any relation between athletics and morals in general?.....
In ideals?.....In restraint?.....
- (Signed)
Prof. or instructor in.....
University of.....

and forwarded a number to the president of every important university in the United States and to twenty of the high schools of California, together with a letter in the name of the State Medical Society of California asking the co-operation of the presidents to the extent of placing the questionnaire with the men who would give the most useful and unbiased information, and also inviting correspondence. A very large number of replies resulted and the great universities in particular have afforded valuable data. I now propose to close this paper with an analysis of this material, but before doing so I think it wise to note that a large number of those applied to vouchsafed no replies—and to ask why? Either these gentlemen had no replies to offer, which is not likely to be the case for a whole university, or they considered the State Society of California of too little importance to receive their attention, or for reasons of policy they were unwilling to favor an investigation into the results of athletics on scholarship. As this latter proposition involves the validity of the information that I have received, I propose to consider for a moment the status of athletics in the colleges and the influence it exerts on their policies. A few quotations from prominent educators will give the needed illumination.

Wilbur P. Bowen, Professor Physical Education Michigan State Normal School, *Western Journal of Education*, December, 1908,—after giving an account of the evolution of athletics in American colleges proceeds as follows: "As the attention given to athletics increased, the need of money to

provide the maintenance of the sports increased along with it. The students interested in these sports failing to secure from the funds of the institution any allowance for their maintenance saw that the existence of any such training depended upon their putting on the market a kind and quality of sport that would pay. Working along this line they soon found that financial support depended upon their putting out a winning team. They found that the average individual likes to be on the winning side of everything, and that while people have a moderate desire to see any contest they have an immensely greater in the field or in a man who can beat all competitors. They found that the average community will give liberal support to a team that can win all its games but that it will not give much financial and moral support to a team that does not. As soon as the promoters of athletics clearly grasped this principle they at once set about making athletics pay. The old idea of athletics for health and discipline was discarded; that of athletics for revenue took its place; what had been sport now became business; what had been friendly competition now became war. The team existed for but one purpose, to defeat and humiliate the teams of rival institutions. Only in that way could it swell the gate receipts. The mass of students lacking unusual physical ability merited consideration only in so far as they would aid in the enterprise by paying the admission fee and rooting for the team. With a skill seldom surpassed in the world of finance many a genius of the college world has invented schemes that have been used in every college and high school; professional coaches have been employed, famous athletes from the alumni have been brought back, coaches and alumni have been set at the task of inducing promising athletes to come to the institution, athletes have been enticed, even hired to leave rival institutions and play against their old associates, newspapers have been induced to give large space to the game and to individual players of certain institutions. Players have been given extra inducements in the form of expensive uniforms and equipment for the sport, free board at the training table, long and distant railway trips and an amount of hero worship seldom excelled in the days of chivalry.

The system has worked well for what it was intended. The success of athletics as a commercial venture has been phenomenal. Single games sometimes bring in gate receipts amounting to more than a thousand dollars apiece for all the men on both the competing teams, several of the largest student associations spend more than one hundred thousand dollars annually for the expenses of the game, several have an equipment paid for by earnings and the gift of loyal alumni approaching half a million dollars. The athletics of smaller institutions have also met with a prosperity on a smaller scale."

We here see athletics practiced not for any intellectual gain, but as a successful way of making money by its participants. We shall next see the college authorities making use of this paying and popular side show as a means of obtaining students. Says Professor Stevenson, "Constantly increasing enrollment is for most college presidents

and most trustees, the only proof of success. Canvassing for pupils is as much part of the college plan in some portions of the country as drumming for customers is in a wholesale business house." "They utilize students as wandering minstrels, they have trained bands of student gladiators to contend in intercollegiate contests and they do not discourage the custom of impressing the greater part of the student body as rooters for the team." Again, Professor C. A. Waldo in an article in the *American Physical Educational Review* writing of types of committeemen mentions "The virtuous president or professor who believes that the principal function of athletics from the standpoint of the college is to advertise." And this standpoint is well illustrated by Dr. E. H. Nicholls at Harvard University when in a lecture on competitive athletics he relates how "some years ago, the father of a boy in his last year in a preparatory school came to see me. He stated that the boy was a first-class football player, a pitcher who had never been batted out of the box, and who almost always made a home run in the game. He wanted to know how much Harvard College would give that boy to enter college, and when I said 'nothing' he replied, 'Very well, such and such a college will give me \$800.'" It would be easy to quote more to the same effect. The gist of these statements is that competitive athletics is to the competing students monetary gain; to the non-competing entertainment and reflected glory; to the college authorities the most valued form of advertising. It will now be comprehensible to the State Medical Society of California and others why in many instances their questionnaire was ignored; it was easier to be discourteous than mendacious—for which we ought to be truly thankful.

Bearing in mind the probability that current tendencies must have made for a predisposition to answers favoring competitive athletics, I will proceed to analyze the replies. As already stated 60% of the total replies express a belief that the athlete is naturally disinclined to study. The high school instructors place it as high as 75%. This is to be expected as the non-studious youth would naturally tend to drop out at the end of the high school course. The second inquiry is answered in equal proportion by high school and university professors and is to the effect that 75% of them are of opinion by direct observation that men in training show a falling off in scholarship. Some of my correspondents are explicit on this point. Says Dr. J. S. Ames, Director of the Johns Hopkins University, "There are students who maintain athletic training to a marked degree and who are fairly good students, but the contrary is the rule in a very large majority of the cases." Moreover, "I think the whole influence on the student body of prominent athletics is bad, inasmuch as the interests of the student are taken away from, what seems to me, to be the proper place for them, is withdrawn from the most important part of man's life, and is placed upon something as trivial as a game." Professor B. Newcomer of Drake University writes me: "It is during the training period that they fall off, especially in the quantity of work. Col-

lege athletics demand too severe exertion." Says Professor T. E. McKinney of the University of South Dakota: "They lose from the time the contest begins to the end of the year and show a lack of interest in the particular subject studied by the class." As to the period over which the failure extends, the majority give no opinion. Many refer to the training period, others for a year, and a few believe the damage is permanent.

The third question was designed to ascertain whether the influence affected all or part of the mental faculties, and the terms used were such as every one understands, even though some psychologists might consider them obsolete. The answers are striking—94% state concentration to be weakened or destroyed; 86% note weakening of memory; 83% weakening of will power and 78% of power to reason. Again the high school instructors give a more averse opinion than do the university professorate. Many of the answers are specific. Says Professor J. A. Angel of the Department of Psychology, Chicago University: "These distinctions can not be sharply drawn. General lassitude and lack of interest is a general result." Professor G. S. Smith of South Dakota University observes a "loss of interest that affects all these powers unfavorably." Professor Mortimer Herzberg writes: "Athletics are the cause of more absences from the class than are justifiable." Professor G. H. Sabine of Stanford University sends me some figures showing that at that institution the high grades received by their athletes were in inverse ratio to their success in athletics. Professor T. S. Ames of Johns Hopkins sums the matter up trenchantly in the statement: "My experiences are that in general students who belong to the athletic teams are weak in powers of concentration and in will power. They seem to me to be stupid."

We now arrive at the last question, What is the effect of competitive athletics on morals? The very varying opinions expressed are seemingly due to the different ways in which the question was interpreted. It appeared to me that morals could be affected in two not necessarily connected manners. Ideals of conduct (not confined to the game) and life could be raised or lowered. And the power of restraint in face of temptation could be strengthened or weakened, not merely for the sake of physical fitness during the training period, but as a continued influence during life. My questions were designed to bring out observations on these points. Unfortunately the answers show that in a very large number of cases the respondents considered only the ethics of the game and the training period. We thus find 60% expressing a belief that ideals are improved, but when reasons or details are given they refer solely to fair play in the game. Adverse criticism is, however, explicit. Professor E. N. Keely of the Northwestern University says: "In some cases, by reason of success in athletics, students lose a proper sense of proportion between athletics and study." Professor Geo. E. Putnam of Kansas University writes: "Excessive exercise causes in many cases a kind of specialization that makes a student lose sight of his better ideals, and he degenerates to the level of brutishness." Dr.

David Starr Jordan, President of Stanford University, believes that the effect of athletics on ideals and power of restraint are "better when moderate, ruinous when overdone." Seventy per cent. of the answers are favorable to athletics as increasing power of restraint, but again the result is vitiated by the prevalent underlying thought that because excesses during the training period are sternly interdicted, therefore the men have acquired habitual restraint. Now the history of society shows that periods of artificially enforced restraint are followed by license, and my conversations with those who have lived in close association with athletes, as a class, is that the training over and the game won, indulgence follows abstinence—and all the surroundings of the hero make for such. It is very difficult to conceive how contests conducted in the spirit of war, whose sole object is to defeat and humiliate the opposing teams, and where men frequently act towards their opponents (to quote Professor Bowen) "in a manner that would almost justify homicide," can be the source of improved ideals. As stated, the preponderant opinion as given in the answers to the questionnaires is favorable to athletics as a good moral influence, but the number of replies to this question were smaller than to the others, and I believe largely given under a misunderstanding. Lastly, 40% of all replies were neutral.

This long paper must now be brought to a close. It has involved a great deal of work, and before a complete statement can be rendered will demand very much more. I trust, however, that the evidence advanced and the consensus of opinion based on direct observation of so many men representing the most important educational centers of the country will be a spur to further investigation. So far as the data are at present available, I cannot but agree with Dr. Stevenson that "Intercollegiate contests of all sorts should be abolished," "courses in gymnasias should be compulsory for all students," that "every student should know that the aim in all athletic work is to fit him to do better work in the class room—not, as now, that incidental work in the class room is required to qualify him for membership in a team. Then heroes of a college will no longer be those who have won their 'letters' by muscular prowess, but those who have made high rank in study. It will no longer be a disgrace in 'halls of learning to be a 'dig,' and one will not be stung by frequent repetition of the assertion that the output of colleges is not that of former days."

**LOOK THROUGH THE
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SCLERO-CORNEAL TREPHINING FOR GLAUCOMA.*

By DR. KASPAR PISCHEL, San Francisco.

Von Graefe's iridectomy had saved thousands of eyes suffering from acute glaucoma, but had not proved equally efficient in chronic and less in simple glaucoma.

De Wecker introduced the sclerotomy and coined the word *Cicatrix à filtration*=filtering cicatrix.

La Grange introduced the sclerectomy—that is, the cutting out of a piece of the sclera near the corneo-scleral margin. After the excision of a piece of sclera, iridectomy is usually performed.

On my visit to Germany, last year, I found the La Grange operation the most favored one in the German clinics.

In England, I saw Spencer's sclerectomy and heard of different modifications. At the Birmingham meeting of the British Medical Association I met Colonel Elliott, who in 1909 had published his first paper about sclero-corneal trephining for glaucoma.

The aim of the operation is the creation of a subconjunctival fistula, which will permanently drain the anterior chamber under the conjunctiva and thus prevent the hardening of the eyeball. Col. Elliott tried this operation on a very large material in Madras, India, with excellent results. In describing the operation I cannot do better than use Elliott's own words. (*The Ophthalmoscope*, Aug. 1, 1911.)

"ANESTHETIC USED.—It is only necessary to administer a general anesthetic in the case of people who are devoid of all sense of self-control. In the great majority of cases reliance is placed entirely upon the instillation of cocain solution (4%) reinforced by one, or at the most two, instillations of adrenalin chloride solution (1/1000). If there is much pain and congestion a sub-conjunctival injection is given of 3 or 4 minims of a mixture of equal parts of the above solutions, and a hypodermic injection of morphin is also administered about twenty minutes before the operation. The latter is also used when there is reason to fear that the patient will be unruly.

"STEPS OF THE OPERATION.—(1) Formation of the flap. The patient lies facing a good light.

"A large triangular flap of conjunctiva is dissected up from above the cornea. It runs roughly concentric with the corneal margin, and ends on either side about 4 mm. below the highest point of the cornea and the same distance from the inner and outer side of the limbus. We lay great stress on this detail, for even if the line of incision cicatrices down all round, filtering fluid from the interior of the eye can still find a free exit through the trephine hole into the sub-conjunctival space outside the limits of the incision through the water ways just left. It is most essential that this flap should be dissected right up to the limbal attachment of the conjunctiva; to ensure this, it is reflected on to the cornea and the dissection is proceeded with until the rounded edge of the limbus can be seen overhanging the surrounding scleral tissue. Against

* Read before the Forty-Third Annual Meeting of the State Society, Oakland, April, 1913.

the dark underlying cornea the appearance of this overhanging edge forcibly suggests a recollection of the corona of the glans penis; if this appearance is seen the surgeon is safe to enter the chamber. But in old, long standing cases it cannot always be obtained, and these are precisely the cases in which there may be a difficulty in entering the chamber on account of adhesions at the irido-corneal angle; we are then in danger of being confronted with a complicated operation and possibly with ultimate failure. It was the experiences of such cases that led us to a further refinement of our procedure, which we have since adopted as a routine measure in all cases; and we now carry our separation of the conjunctiva from the cornea to a farther stage with the aid of the scissor point. As a result of the maneuver, the cornea can be seen to be split; a thin, dark colored crescent, about one millimeter in breadth, surrounds the base of the flap, and defines the area over which the splitting has been effected. Once this appearance is recognized we may be sure of entering the anterior chamber with the trephine; hence the importance of adopting this modification of our technique in every case of trephining. Throughout the whole of the dissection of the flap it is important to keep the points of the scissors directed towards the plane of the posterior pole of the lens; for if one dissects tangentially one is sure to buttonhole the conjunctival flap. It is not necessary to lay bare the limbus throughout the length of our incision. It is sufficient if we do so at the center of the latter over the area adjacent to the spot on which we propose to apply the trephine."

In this last stage I, myself, split the cornea with a small triangular knife, and then lift up the anterior flap with a fine hook and thus clear a space and steady the eyeball for the application of the trepan.

"(2) APPLICATION OF THE TREPHINE.—The spot selected for trephining should be as close to the limbus as possible. If this cardinal rule is disobeyed, two dangers confront the operator: (1) he is much more likely to have an escape of vitreous; and (2) he will probably fail to enter the chamber with his trephine, and will have to burrow his way into it by the aid of a curette or other instrument; in so doing he will probably injure the ciliary body."

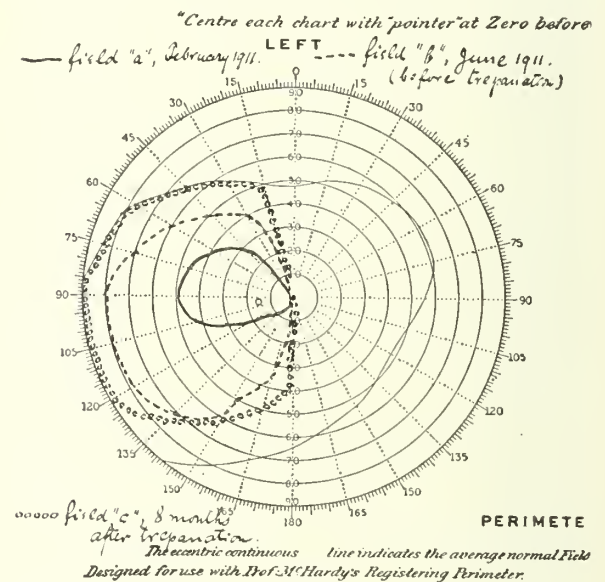
Following Norman's suggestion (*Ophthalmoscope*, January 1, 1912) I tried the trans-illuminator for examination as well as during the operation. It is a distinct help as it illuminates the sclero-corneal margin most distinctly.

"The choice of the size of the trephine lies between $1\frac{1}{2}$ and 2 mm.

"TREATMENT OF THE IRIS.—It sometimes happens that the iris bulges into the aperture the moment the disc is cut through; if so, it is snipped with the scissors in a radial direction in order to let the aqueous escape; the membrane then often goes back of itself; if it does not do so, then a piece is excised, care being taken to avoid traction of the iris, which will otherwise tend to become impacted in the narrow aperture.

"TOILET OF THE WOUND.—If any tags of iris are seen in the wound, if the pupil has not returned to a central position (thus showing entanglement of the iris in the wound), or if the chamber fills with blood, we use a McKeown's irrigator with very satisfactory results.

"INSTILLATION OF DROPS.—Our rule is to avoid all instillations immediately after operation, unless the pupil shows an obstinate tendency towards upwards displacement, in which case eserine drops (grs. 4 ad. oz. 1) are instilled. On the third day we drop in a solution of atropin (grs. 4 ad. oz. 1), unless the pupil is already widely dilated and active. Our reason for this latter instillation



is that we find in congestive cases a strong tendency to the formation of posterior synechia; the quiet iritis which leads to this exudation gives no other evidence of its occurrence, and must therefore be constantly guarded against."

Lately this operation has been employed by German oculists.

Stock of Jena, in a recent article (*Klinische Monatsblätter für Augenheilkunde*, October, 1912) gives the following short summary:

"1—Increased tension is the cause of the excavation and the decrease of sight.

"2—This high tension must be removed.

"3—Every primary glaucoma should be operated upon.

"4—Elliott's trepanation is the best operation.

"5—It replaces the simple iridectomy in every case.

"6—Trepanation is easier, less dangerous than the old iridectomy or other operations for glaucoma.

"7—There are some cases in which one should not take the risk of an operation. For example, very old, decrepit people, if the tension can be reduced by myotics.

"8—As the chances for a cure are better the earlier the operation is made, one is justified in recommending an early operation.

"9—The less dangerous the operation is, the more one is justified in recommending it, and I consider Elliott's trepanation the least dangerous."

Colonel Elliott's personality and his paper read before the British Medical Association made such a favorable impression upon me, that I decided to try this operation immediately after my return.

I made trepanation 19 times on 15 eyes of 9 patients.

I will report the history of eight cases in abridged form and present to you one case with more detailed notes.

Case 1, Mr. J. S., J. 2388, age 53 years. Before trepanation: Visus 0.5/60; field small, Tonometer 51. Seven months after trepanation: Vis. 5/6; field normal, Ton. 18.

Case 2, Mr. L. S., J. 884, age 69 years. Before trepanation: Vis. 5/9; field narrowed inward, Ton. 32; two months after trepanation: Vis. 5/9; field unchanged, Ton. 22.

Case 3, Mrs. A. S., J. 14197, age 51 years. Before trepanation: Vis. 5/6; field narrowed inward, Ton. 62. Ten months after trepanation: Vis. 5/6; field normal, Ton. 18.

Case 4, Mrs. L. S., J. 2248, age 69 years. Right eye—Before trepanation: Amaurosis, Ton. 46. Ten days after trepanation: Eye soft. Left eye—Before trepanation: Vis. 5/12; field narrowed downward and outward, Ton. 32. Seven months after trepanation: Vis. <5/9; field slightly narrower than before, Ton. 8. On the right eye a small La Grange operation with basal iridectomy had been made eight months before the trepanation.

Case 5, Mr. L. L., J. 2452, age 45 years. Right eye—Before trepanation: Vis. no movement of hand, Ton. 55. Six weeks after trepanation: Ton. 67, therefore second trepanation. Two months after second trepanation: Ton. 19, no perception of candle light. Left eye—Before trepanation: Vis. finger in 30 cm.; field very small, Ton. 43. Four months after trepanation: Vis. finger in 1 M., Ton. 19, field slightly larger.

Case 6, Mrs. W. R., J. 481, age 66 years. Right eye—Before trepanation: Vis. 4/15; field small, Ton. 23. Five weeks after trepanation: Vis. >4/15; field increased, Ton. 15. Left eye—Before trepanation: Vis. no perception of light, Ton. 33. Five weeks after trepanation: Ton. 21.

Case 7, Mr. C. G., J. 2439, age 58 years. Right eye—Before trepanation: Vis. movement of hand, Ton. 55. Six weeks after trepanation: Ton. 25. Two months after trepanation: Ton. 47, therefore second trepanation. Two weeks after second trepanation: Ton. 35. Six weeks after second trepanation: Ton. 50, therefore third trepanation. Three weeks after third trepanation: Ton. 25. Seven weeks after third trepanation: Ton. with 10: —1. Left eye—Before trepanation: Vis. finger in 40 cm.; field very small <10°, Ton. 30. Six weeks after trepanation: Vis. finger in 40 cm.; no change in field, Ton. 30. Two months after first trepanation: Ton. 37, therefore second trepanation. Three months after second trepanation: Vis. finger in 30 cm.; field increased to 30° temporal, Ton. 27.

Case 8, Mrs. F. K., J. 1070, age 62 years. Iridectomy had been made in both eyes about ten years ago. Senile cataract is developing. Right eye—Before trepanation: Vis. 2/60; field narrowed, Ton. 51. Nine months after trepanation: Vis. 2/30; field increased, Ton. 17. Left eye—Before trepanation: Vis. finger in 50 cm., Ton. 37. Nine months after trepanation: Vis. counting of finger not reliable, Ton. 36.

I now present Case No. 9, Miss M. H., J. 1992, age 26 years. History: A little over three years ago the patient called on an oculist because she could not see well in the distance, but she had no difficulty in her occupation, sewing. Glasses were prescribed. Two years later she went back to the

oculist complaining about pain above eyes, back to the neck and decrease of sight. The doctor spoke about hardening of the eyeballs, but did not give any treatment; he changed the glasses, which did not feel comfortable. A week ago the patient bumped into a telegraph pole which was standing on her left side and which she had not seen; therefore she came to my office February, 1911.

Right eye: Vis. —2. cyl.—0.5 Axis. Hor. <5/6; field considerably contracted, inward to 30°, downward to 23°, outward to 83°. Javal 0.5, Keratometer + 0.25 Vert. Left eye: Vis. 1/30; field very small (see field "a"). Javal 0.75, 15 temp., Keratometer + 0.75 Hor. Pupils in good light, 5 mm.; they react well on light; under eserine contract to 3 mm. Tension of both eyes hard; discs totally excavated. Under myotics both eyes improved but the tension remained high and the excavation unchanged.

June 6, 1911. Right eye: Vis. —2. cyl. 0.5 Ax. Horiz. <5/4; field nearly normal. Left eye: Vis. 0.5/21; field (see field "b").

I made Heine's cyclodialysis with which I combined a sclerectomy, cutting out a triangular piece of sclera, about 3 mm. outside of the sclero-corneal margin. The tension remained lower for some time.

After my return from Europe I found, at repeated examinations during April, 1912, the following:

Right eye. Vis. 5/4; field normal, Tonometer indicated from 50—60. Left eye: Vis. 5/21; field (see field "b"), Tonometer indicated from 33—43.

On May 16, 1912, I made a trepanation on the left eye. This eye has remained soft ever since, below normal; the conjunctiva bulbi shows a slightly chemotic ring around the upper 2/3 of the cornea. Eight months after the trepanation the sight is 5/15; the field has increased (see field "c").

Encouraged by this result I followed Elliott's advice of early operation and made the trepanation on the right eye, October 12, 1912; as the iris protruded into the trepan opening, basal iridectomy was made. The tension has remained sub-normal since and the chemosis of the conjunctiva shows, as in the left eye, that the filtering into it takes place very freely. The field is normal, but the sight is not so satisfactory. It is now four months after the trepanation, with cyl. + 1., Ax. 30 temp. cyl. —2.25 Ax. 60 nasal <5/12. Javal shows 2.5, 60 nasal. Keratometer 3, 30 temp. This astigmatism may be responsible for the poor central vision. The fundus remained unchanged.

In conclusion, I will give the results of my operations in short.

The operation was performed 19 times on 15 eyes. Three eyes were operated upon twice and one eye three times.

The results are the following:

Visus: Better in 6 cases; the same in 3 cases; worse in 3 cases. In three cases amaurosis existed before the trepanation.

Field: Larger in 7 cases; the same in 2 cases; smaller in 1 case. In five cases the field could not be taken.

Tonometer reading: Lower in 14 cases and the same in 1 case.

Supplement.—Since reading my paper I repeated the trepanation on Case No. 7, in which previous operations had failed to reduce the tension permanently; so far the eye has remained soft.

Instead of the hand trepan, I have used the trepan in a dental engine with gratifying success; the operation is quicker and easier; a guard prevents the trepan from entering too deeply.

Regarding the word "trephining" adopted by Dr. Elliott for this operation, I would like to mention that according to Webster's Dictionary (ed. 1910) the correct name seems to be "trepaning" or "trepanation," as the instrument used is a trepan and not a trephine, which latter is defined as a modified form of the trepan distinguished by a center pin.

USE OF SERA IN MEDICAL HEMORRHAGE.

By F. F. GUNDRUM, M. D., Sacramento.

The term medical hemorrhage is used in this paper to cover a heterogeneous group of cases in which bleeding, not amenable to mechanical manipulation, may occur. These may be roughly summed up into the following groups:

- (1) Hemophilia.
- (2) Hemorrhagic diseases of new-born (of which there are several forms).
- (3) Purpuras (acute-chronic-simple-rheumatic-Werlhof's-Henoch's, etc.).
- (4) Jaundice.
- (5) Grave Anemias.
- (6) Enteric Affections:
 - (a) Typhoid.
 - (b) Dysentery.
- (7) Pulmonary Lesions.
- (8) Nephritis, Malaria, and other severe maladies occasionally.

It is at present impossible to classify these pathologically or physiologically on account of the insufficiency of our knowledge of the causes of this abnormality in the coagulation of the blood. In order better to approach this problem, it is advisable to review briefly the prevailing ideas regarding normal blood coagulation.

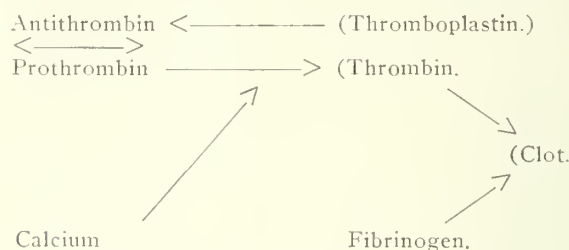
Our interest in this subject was stimulated by the occurrence at the Sacramento County Hospital of several cases in which the tendency towards bleeding was a prominent symptom. On looking over the literature, there seemed a considerable diversity of opinion regarding some of the details of blood coagulation. The recent publications of Howell¹ are followed quite closely in this brief sketch. To begin at the end product and work backward we have:

(1) The clot which is produced by the action of fibrin ferment or (thrombin) upon fibrinogen. Fibrinogen is a definite substance, a globulin-like proteid, which is always present in the amount about 0.5% of normal blood. It forms the main bulk of the clot. It is capable of being isolated (Whipple and Herwitz)² and studied. A diminution in the amount of fibrinogen is usually associated with some destructive liver lesion.

(2) Thrombin (whose action upon fibrinogen produces the clot) is not present as such in circulating blood. A mother substance of thrombin (called prothrombin) is normally present but inactive, being bound (in some way, perhaps as the complement is bound in the Wassermann serum reaction) by another substance normally present, namely, anti-thrombin. In order, then, to initiate the clotting process, it is necessary for the prothrombin to be free. This is brought about through the agency of a substance liberated by injured tissue cells, white blood cells, platelets, etc. This substance is called by Howell thromboplastin. The mode of its action being the absorption or fixing of a certain amount of anti-thrombin with a coincident setting free of prothrombin. This latter substance then immediately unites with

soluble calcium salts, which are essential to the reaction to form thrombin, and clotting takes place.

The above described series of reactions can well be shown by a diagram such as used by Whipple.³



From this diagram it seems likely that there may be several different causes for failure of coagulation and, although it is still too early in the study of these diseases to speak of an "anti-thrombin-hemophilia" or a "fibrinogen-purpura" it seems certain that some such qualifying terms will be necessary to express the true pathological picture. Two types of theories are advanced to account for uncontrollable bleeding; the first assumes the absence of some one of the normal constituents; the second assumes the presence of some anti-coagulant (anti-thrombin). In an excellent recent paper, Whipple³ has shown that the fault may be different in different diseases and fall into either of these two groups. He demonstrated the presence of anti-thrombin in a septicemia case with hemorrhage; the absence of prothrombin in a case of melena neonatorum; and the lack of fibrinogen in a patient suffering from cirrhosis of the liver.

When we review the treatment of these difficult patients we are struck by the very considerable number of drugs formerly employed. The list includes ferric-chloride; silver nitrate; hydrastin; gallic acid; ergot; adrenalin; gelatin; etc. Aside from the well-known action of ergot in uterine bleeding and the local styptic action of adrenalin, there is not much to be said in favor of any of these agents.

A logical course of therapy would endeavor to supply the missing ingredients from the equation or neutralize an excess of anti-thrombin present. The analysis necessary to determine the exact abnormality is time consuming and requires a considerable laboratory equipment. For ordinary purposes, then, we are compelled to begin treatment without waiting for the outcome of such analysis. The most available source of supply for substances to form a clot, with the exception of calcium, is blood serum. Calcium has been used extensively in hemorrhage, sometimes with great benefit and sometimes without any apparent improvement. This seems reasonable enough when we consider that it is only one of the several bodies which may be lacking.

Sera, of one sort or another, have been extensively employed with varying effects, usually beneficial.

Weil's work⁴ on Hemophilia appeared in 1905. He differentiates this malady into two groups:

- (1) Hereditary form more severe due to presence in the blood of anti-coagulants.

(2) Sporadic less severe due to absence of some normal necessary substance.

He recommends the use of 30 cc. fresh normal serum sub-cutaneously or 15 cc. fresh normal serum intravenously. Leary⁵ published a very interesting series of 20 cases divided as follows: Jaundice, 9; hemorrhage of new-born, 3; hemophilia, 1; purpura, 1; post-operative hemorrhage, 2; uterine hemorrhage, 1; typhoid, 2. Thirty cc. fresh rabbit serum injected at a dose sub-cutaneously gave very good results.

Schockaert⁶ used anti-streptococci (horse) serum, 10 cc. at a dose, on several cases with very good results. Many other observers have seen benefits from serum. A few reports have appeared where no benefits were obtained. Schloss and Commisky⁷ inject 10 to 30 cc. of whole blood sub-cutaneously. Duke⁸ considers the tendency to uncontrollable bleeding, in some cases at least, to be due to diminished number of blood platelets. It is manifest that until more accurate knowledge of the causes, for of these there are in all probability more than one, of this condition has been gained, the treatment must be more or less empirical. At any rate the use of sera, i. e., horse serum, fresh rabbit, guinea pig or human serum, defibrinated human blood, or direct transfusion of blood appears to have yielded better results than any other method to date.

The intravenous introduction of defibrinated blood or foreign serum offers considerable risk on account of possible hemolysins contained; moreover, theoretically at least, the danger from agglutins is equally great. However, in the present state of our knowledge, the risk is not sufficiently great to cause any hesitation in using the method. If Duke's blood platelet theory proves to be a correct one, it does not invalidate the logic of giving defibrinated blood or blood serum, for it is likely that the platelets themselves are not the active agents in the change but some decomposition product of the platelets. It seems probable that the injection of serum or defibrinated blood would answer as well as direct transfusion in all cases except those in which the bleeding was due to a lack of fibrinogen. It is a consideration of great practical importance, for by using injections one is sure that the patient has received a known amount of serum, whereas transfusion even in the most competent hands, often leaves the observer in very considerable doubt as to the amount of blood transferred, if any.

The method of choice at present, then, in the cases of medical hemorrhage would seem to be the exhibition of calcium by mouth with the subcutaneous use of serum or fresh human blood (10 to 20 cc. at a dose). In all cases except those exhibiting a lack of fibrinogen we should expect to see an improvement, for serum introduced tends to combine with an excess of anti-thrombin as well as to supply deficient substances. The patient whose fibrinogen is low and who usually shows signs of hepatic disease may require direct transfusion of blood.

The series which this paper reports consists of

eight cases admitted to the Sacramento County Hospital from September 1910, to June 1913. It has been impossible to make analysis of the patient's blood and the report is only clinical, and therefore, incomplete.

Case 1. J. P. H., male, aet 32; admitted June 19, 1911, complaining of "Rheumatism."

F. H.—Unimportant.

P. H.—Always well and active—no similar previous attacks—no throat trouble.

P. I.—Began 5 days ago—sore throat—fever—3 days ago right knee swollen—2 days ago right elbow and left ankle.

P. Ex.—Well nourished man—tonsils inflamed, several crypts containing pus on each. Streptococcus found in tonsillar smear. Thorax and abdomen negative. Left ankle, right knee and elbow hot, tense, painful. Eight to ten purpuric spots—two to four mm. in diameter on each leg.

June 20th.—Purpuric rash much increased. Ten cc. guinea pig serum subcutaneous.

June 22nd.—No further increase of purpura.

July 16th.—Joints cleared under salicylates and rest; discharged.

Case 2. J. B., aet 10; admitted November 10, 1911, complaining of nose bleed—purple rash.

F. H.—Unimportant.

P. H.—No similar previous attacks—rather delicate child—malaria two weeks ago—took ¼ bottle Grove's Chill Tonic.

P. I.—Began four days ago with nose bleed—four attacks on first day—four on second day—three on third day—3 on day of admission. Rash began on day after—epistaxis started—no joint or abdominal symptoms.

P. Ex.—Poorly nourished; otherwise nothing remarkable noted about internal organs. There is a slow oozing from both nostrils of rather dark blood. Numerous purpuric spots, one to ten mm. in diameter are scattered over the body as follows: One in right lower conjunctival sac—15 or 20 on each arm—eight or 10 on back and abdomen—very thickly scattered over both thighs and legs. Temperature 101. Pulse 100. Respiration 20. Blood examination (Dr. Julien). Red blood cells 3,500,000—white blood cells 8000—hemoglobin 70% test.

Differential:—

Polymorphoneuclears	54%
Large mononeuclears.....	8%
Small mononeuclears.....	33%
Transitionals	3%
Esinophils	1%
Mastzellen	1%

Nov. 6th.—5 cc. fresh guinea pig serum.

Nov. 7th.—5 cc. fresh guinea pig serum.

Nov. 10th.—Our supply of guinea pigs becoming considerably depleted we gave 10 cc. of horse serum (anti-streptococcus).

Nov. 12th.—No further bleeding.

Case 3. M. L.; admitted December 30, 1911, complaining of spitting up blood.

F. H.—Indian pure blood.

P. H.—Unimportant—source of infection not known.

P. I.—Three weeks' cough.

P. Ex.—Right apical lesion (tuberculosis).

Dec. 31st.—Severe hemorrhage—400 cc.—slow—long continued.

Jan. 1st.—Hemorrhage—250 cc.—slow—10 cc. anti-streptococcus serum.

Jan. 2nd.—Slight hemorrhage—25 cc.—10 cc. anti-streptococcus serum.

Jan. 31st.—No further hemorrhages for four weeks.

Case 4. A. S., aet 14; admitted January 12, 1912, complaining of nose bleed—two days' duration.

F. H.—Unimportant.
 P. H.—No similar previous attacks—no severe infections, except malaria one month ago.
 P. I.—Repeated nasal hemorrhage during past three days.
 P. Ex.—Nasal mucosa red—oozing over both turbinates—not remarkable otherwise.
 Jan. 13th.—10 cc. horse serum (anti-pneumonic).
 Jan. 14th.—No change—nares plugged with iodoform gauze.
 Jan. 15th.—No further hemorrhage.

Case 5. A. M.; admitted April 4, 1912, complaining of nose bleed.

F. H.—No known bleeders.
 P. H.—On several occasions protracted bleeding from slight wounds.
 P. I.—Epistaxis five days' duration at intervals.
 P. Ex.—Not remarkable except for rather rapid capillary ooze from right nostril.
 April 4th.—Nares plugged.
 April 15th.—10 cc. horse serum (anti-pneumonic).
 April 6th.—Still some bleeding—10 cc. horse serum.
 April 10th.—No further hemorrhages.

Case 6. A. K., new born babe. Born at the hospital Aug. 10, 1912. Third day marked jaundice without fever accompanied by purpuric spots and bloody bowel discharges.

F. H.—Negative.
 Aug. 14th.—5 cc. horse serum subcutaneously.
 Aug. 15th.—No improvement—5 cc. human blood subcutaneously.
 Aug. 16th.—10 cc. human blood subcutaneously. No improvement. It was impossible to obtain consent of the father to perform transfusion. Baby died.

Case 7. H. O., aet 14; admitted June 10, 1913; typhoid fever.

F. H.—No bleeders.
 P. H.—Not remarkable.
 P. I.—One week's duration, ordinary course.
 June 24th.—Moderately large intestinal hemorrhages. Hemorrhages at intervals for the following five days in spite of calcium by mouth. Bleeding rather slow. Pulse rose from 80 to 120 during the five days. Ten cc. freshly obtained human blood given subcutaneously. Slight staining of bowel movement three hours later; after which no bleeding. Patient recovered.

Case 8. M. H., aet 30; admitted June 25, 1913; typhoid fever.

F. H.—Not important.
 P. H.—Not important.
 During third week of disease 12 hemorrhages averaging about 100 cc. each, during the course of six days. On the sixth day 5 cc. horse serum subcutaneously. No further hemorrhages. Patient recovered.

In six of the eight cases quite definite improvement followed the exhibition of serum or in one instance of fresh human blood. Case No. 4 presented no definite blood dyscrasia and the serum was used merely tentatively. Mechanical means proved quite effective in this case which was not properly an example of a "medical hemorrhage."

Case No. 6 was not benefited by horse serum or fresh human blood and possibly represents an example of lack of fibrinogen. A direct transfusion of blood from the father (had it been obtainable) might have been of benefit.

It seems quite impractical to group together cases of such varied pathology and having but one symptom in common. However, this symptom is frequently so distressing and prompt relief so necessary that any means available for its relief

are gladly used. Whether the results observed in this little group of eight cases which represent our "medical hemorrhage" experience during the past three years, are merely coincidences; or may properly be explained by some of the theoretical considerations mentioned above, I am not prepared to say. I have, however, submitted them for the consideration and criticism of other members of this Society.

References.

1. Howell, W. H., *Am. Jour. Physiology*, 1910, XXVI, 435 and 1911, XXIX, 187.
2. Whipple and Herwitz, *Jour. Exper. Med.*, 1911, XIII, 136.
3. Whipple, G. H., *Archives Internal Med.*, 1912, Vol. 9, No. 3, 365.
4. Leary-Bost, M. and S. T., 1908, CLIX, 73.
5. Weil, *Presse Med.*, 1905, XIII, 673.
6. Schockaert, *Rev. Med. de Louvain*, 1910, 58.
7. Schloss and Commisky, *Am. Jour. Dis. Children*, 1911, 1-276.
8. Duke, *Jour. Amer. Med. Assn.*, 1910, IV, 1185.

TREATMENT OF URINARY TUBERCULOSIS, TUBERCULIN AND NEPHRECTOMY.*

By DRS. LEGUEU and CHEVASSU.

Translated by LEON JOSEPH ROTH, M. D.
 INTRODUCTION.

Among the problems raised by the therapy of local tuberculoses, there are none so difficult as those concerning the treatment of bacillary infection of the urinary tract. Since the time when it was recognized that urinary tuberculosis is always, or nearly always, of renal origin, surgery was the means of solving the question, by ablation of the pathological kidney in all cases when this suppression was possible. The dogma of precocious nephrectomy in renal tuberculosis, originated by Prof. Albarran of Necker Hospital, Paris, progressively converted the medical world, so that at present this surgical procedure is universally followed. However, there is no doubt that this very radical method of suppression of so useful an organ as a kidney has raised certain objections, in as much as this suppression is directed towards a pathological condition which in other parts of the organism are susceptible of healing without surgical intervention.

It is possible to conceive that a certain reaction has occurred in the medical world, so that now the surgeon has difficulty in deciding to sacrifice a kidney, upon which the tubercule bacilli has produced only discrete lesions, because all hope has not been lost, that such lesions might be cured by a purely medical treatment.

For the past ten years, the advocates of both methods have been prominent in their discussions, and in the accumulation of observations and statistics, and a settlement of this medico-surgical difference of opinion is in imminence of being settled.

Physicians and surgeons have realized their therapeutic conceptions, and have made known the results obtained. They are no longer theoretic. There remains only to judge the facts.

RESULTS OF SURGICAL TREATMENT.

Nephrectomy is not a dangerous operation. This can be proven by the accumulated statistics of a

* Read before the Seventh International Congress of Tuberculosis, Rome, 1912.

large number of surgeons. Of 1539 nephrectomized patients for renal tuberculosis, 92 operative deaths occurred, or 5.9%. These statistics are not all in detail, because many of the patients were not kept under surveillance for long enough time. To study more closely the results of nephrectomy, as much from the point of view of the deaths as of the recoveries, 708 cases will be considered, with results as follows:

557 living 78.7%
151 dead 21.3%

A study of cases in which death occurred.

It is very difficult to separate the "late deaths" from the "operative," consequently all cases dead within the month of operation will be considered as "operative." Of 151 deaths—

43 operative deaths,
108 late deaths.

(a) Of the 43 operative deaths, the cause of 30 is as follows: Twelve due to insufficiency of the conserved kidney. The remaining 18 are as follows:

Cachexia 3
Hemorrhage 2
Infection 2
Pulmonary T. B. 1
Tetanus 1
Generalized T. B. 2
Intestinal gangrene..... 2
Cardiac insufficiency..... 2
Tubercular meningitis..... 1
Gastric hemorrhage..... 1
Acute gastric dilatation..... 1

(c) Of the 108 late deaths, 91 are explained. Seventy-five were due to the following tuberculosis:

Pulmonary T. B. 28
Tubercular meningitis..... 11
Non specified T. B. 6
T. B. of conserved kidney..... 17
Generalized T. B. 11
Tubercular peritonitis..... 2

The other 16 cases are disposed as follows:

Nephritis or uremia..... 4
Infections 2
Cachexia 9
Salpingitis 1

Of the 108 late deaths, the greatest number were within the first year following operation:

1st year 68
2nd year 9
3rd year 8
4th year 8
5th year 6
6th year 2
7th year 4
8th year 2
9th year 1

It is evident that after the first year the operated runs but little risk.

(b) Study of cases in which recovery occurred:

The 557 survivors, followed after their nephrectomy may be classed as follows:

291 complete recoveries..... 41.2%
58 non specified recoveries..... 8.2%
185 incomplete recoveries..... 26.2%
23 mediocre results..... 3.2%

1. Mediocre results (23 cases) composed of patients who presented grave pulmonary T. B. (5 cases), or a manifested T. B. of the conserved kidney (9 cases), or those who remained feeble after the operation, without appreciable amelioration: all destined to early decease.

2. Incomplete recovery (185 cases).

These nephrectomized retained their good general condition, but conserved urinary troubles, i. e., frequent and painful mictions, or at least infected urine. The incomplete recovery apparently due to the persistence of vesical tuberculosis.

The future of these incompletely cured patients is difficult to predict. In time many will have amelioration of their vesical troubles. Others will probably develop tuberculosis of the remaining kidney.

These cases survived:

Less than one year..... 23 cases
More than 1 yr. (1 to 12 yrs.)... 132 cases
Indefinite 30 cases

The number of these incomplete recoveries diminish with time, a certain number, however, survive seven or eight years and over. One case, ten years after operation still has infected urine, while another presents an abundant albuminuria, in a clear urine.

3. Complete recovery (291).

The complete recoveries are those in which the condition of the urine could be verified. In many of the subjects the clear urine was considered as sufficient proof. But in a large number, inoculations were made, and cystoscopic examinations showed normal bladders. All maintain good general conditions, and a few have a slight frequency of mictions.

The duration of recovery of these cases is as follows:

Less than 1 year..... 22 cases
More than 1 yr. (1 to 14 yrs.)... 269 cases

4. Recoveries (58 cases).

In this special category are arranged a certain number of operated, considered as cured, but nothing is known of the condition of the urine, or the character of the mictions.

The duration of their cure follows:

Less than 1 year..... in 10 operated
More than 1 year (1 to
12 yrs.)..... in 48 operated

Resumé. Definitely, the 708 nephrectomies give
173 bad results..... 24.5%
534 good results..... 75.5%

The bad results comprise—

43 operated deaths..... 6.1%
108 late deaths..... 15.2%
23 survivors in grave condition... 3.2%

The good results comprise—

18 incomplete recoveries.....	25.2%
58 recoveries	8.2%
291 complete recoveries.....	41.2%

It may be said here, that following nephrectomy for renal tuberculosis, one-quarter of the operated die in from 0 to 10 years following the operation.

One-quarter of the operated are but incompletely cured.

One-half completely cured.

RESULTS OF MEDICAL TREATMENT.

All the modes of medical treatment of renal tuberculosis are without doubt far from having great value, and the following statistics include facts that lack conformity; 738 cases are considered, as against the 708 treated surgically.

Of these 738 cases treated radically

456 have died.....	61.9%
282 are living.....	38.2%

A study of the 456 fatal cases.

Considering the date of decease, they are divided thus:

Date not specified.....	124
From 1½ to 20 yrs. (without other detail)	48
Exact date known.....	284

Of these 284 cases, death occurred

During the 1st two years.....	144
From 3 to 5 yrs.....	105
From 5 to 10 yrs.....	24
Over 10 yrs.....	9

All of these afflicted, save two, died of renal tuberculosis, or of an intercurrent tubercular complication.

A study of these cases show that many die within two years; a less number survive only five years, and but few live longer, to eventually die of some form of tuberculosis.

A study of 282 living cases.

The duration of life to date is as follows:

From 1 to 5 yrs.....	169
From 5 to 10 yrs.....	40
Over 10 yrs.....	22
Not specified.....	51

The condition of these survivors is considered in 178 cases.

142 retain their renal tuberculosis plus continuous evolution;

36 are to all intents free from infection.

Of these apparently cured cases (36)—

32 are without local manifestations;	
2 show urinary infection;	
1 shows albuminuria;	
1 completely cured.	

This last case had been treated by tuberculin.

Among the patients medically treated there are doubtless some for whom a surgical treatment would not have been justifiable, and exact comparison with the nephrectomized is impossible.

If certain renal tuberculoses medically treated are of slow evolution the recoveries obtained by this method are infinitely exceptional. Also are very exceptional, the spontaneous recovery of these cases.

RESULTS OF THE TUBERCULIN TREATMENT.

To correctly judge the results of this treatment it is impossible to depend upon general total statistics; many authors publish only those cases that are to them interesting, and acknowledge that they do not report all cases treated by them.

We have united 184 cases, all treated by tuberculin; but the treatments have been mixed, i. e., tuberculin of Koch, Boranek, filtered bouillon of Denys, Marmorek's serum, immunizing bodies of Spengler. Further these patients have been subjected to general anti-tubercular treatment.

These 184 cases are disposed thus:

Dead	18
Stationary	24
Improved	91
Cured	51

And from them the following conclusions are drawn:

1. Under the influence of the tuberculin treatment many of the patients are ameliorated; this amelioration is manifested by gain in weight and general improvement. It is likewise manifested by a diminution in the number of mictions and a lessening of the pain; and a clearing of the urine. These modifications may be due to co-existent vesical treatment, also it is not less true that improvement may be noted when there has been no vesical treatment instituted.

2. Many patients remain improved during a greater or less time, and then recommence their symptoms; 16 of the 184 cases were ultimately nephrectomized.

3. An examination of these organs, evidence that they do not differ from the ordinary tubercular kidney. They are cavernous, many giant cells are found upon section; and the pus contains T. B. Only one of these kidneys presented evidence of healing. It contained ancient and recent abscesses, zones of necrosis, and calcifications, and the blood vessels were considerably thickened. It is difficult to affirm that there actually existed a process of healing, because the malady had not lost its virulence and the patient died three months after operation, of miliary tuberculosis.

4. Of the 16 cases nephrectomized after the tuberculin treatment, four died rapidly of generalized tuberculosis; two died of tubercular meningitis after two months; two of general miliary tuberculosis in three months.

This formidable proportion of generalization is frightful. If the tuberculin treatment so frequently provokes such anaphylaxis, it risks of becoming itself a contra indication to surgical intervention.

5. Of the 51 recoveries attributed to the tuberculin many are not convincing.

(a)—In 24 cases actual proof was not presented;

(b)—In 27 cases the patients seemed cured, in the sense that they do not suffer, and their urines are clear, but in 16 of these the cure is of too short duration for affirmation that their condition is else than a temporary amelioration.

(c)—Eleven cases treated by tuberculin, are apparently cured after the lapse of one year; up to

the time of this report the survivors and the time of their cures were as follows:

13 months.....	1
15 months.....	1
18 months.....	2
2 years.....	4
3 years.....	1
4 years.....	1
5 years.....	1

The question still remains, are these cases permanently cured?

COMPARATIVE RESULTS OF SURGICAL, MEDICAL AND TUBERCULIN TREATMENT.

Surgical treatment has proven its value—6% of operative mortality. If it does not cure all patients (18% late mortality), it cures at least one-half, and ameliorates one-quarter.

Medical treatment has proven its insufficiency; it retards, perhaps, the evolution of renal tuberculosis but it does not arrest it. The few known examples of cure that are attributed to it are apparently renal exclusions, the dangers of which are certainly more considerable than those of a nephrectomy (persisting dangers of generalization, action upon the opposite kidney, and recurrence in the diseased organ).

The tuberculin treatment has proven its powers of amelioration, but it has too rarely proven its curative effect. It authorizes a hope, always seductive, of cure without operation, and unfortunately but few have been realized. Encouragement might be given in certain cases, if certainty existed that, in case of failure, they would return for operation in a not more serious condition than previously.

The treatment of choice, then, actually is surgical. A general medical treatment should always be coincident.

As for the tuberculin treatment, it will perhaps render services after nephrectomy; before this if urgent, an attempt may be made in young subjects where the diagnosis of renal tuberculosis has been early, and before the advent of pyuria.

REPORT ON FOUR CASES OF VARYING TYPES OF ANEMIA.*

By E. H. CRABTREE, A. B., M. D., San Diego.

To the man of medicine, striving to attain to the greatest efficiency in the diagnosis and treatment of disease, anything that may aid his work is welcomed with ardor. In this age of specialization, it is impossible, for the general practitioner to reach the finesse in the use of the various apparatus which are an aid in diagnosis, except by much careful study and application to detail. However, there are many things which the general profession often fails to grasp which should be seized with alacrity, and should be developed to the highest point of efficiency. Among these things, none to my mind is more important than the blood count, with special emphasis on the differential count of the white cells.

To the busy doctor, with an office full of pa-

tients each waiting his turn, it is so easy to make a "spot diagnosis," write out a prescription, collect a fee (sometimes?) and send the patient away with a few words of counsel.

In my short experience, I believe I have found nothing so frequently overlooked as the various anemias, each so typical in itself, and each responding to treatment just in proportion to the therapeutic measures directed at the specific trouble present. When a patient presents himself, complaining of some of the various symptoms dependent on insufficient blood, it is not doing justice to our profession to look at the lips, the conjunctiva, or perhaps the fingernails, order some form of iron to build up the blood, and feel that we have done our full duty. I do not consider it my province, before this body of men, many of whom are vastly my superiors in training and experience, to go into detail about the various causative factors of anemia, nor to attempt to classify the various types; for all this can be read at length in any of the text books and journals; but I am eager to take this opportunity to, in my meagre way, give the facts of four cases that have come under my observation within the past few months. Each of these, wholly different in type, I feel that I have benefited and I know that my practice has been greatly increased by the success that I had in one especially.

Case. I. Mr. K., a man of 43 years, came into my office in November, 1912. He complained of great lassitude, indigestion (?), palpitation of the heart, and some swelling about the ankles. His family history was absolutely negative. His former history was that of having been a strong, healthy man with very little sickness outside of the common children's diseases. His present trouble began in May, 1911, at which time he began to feel lazy. He thought he needed a rest and took a camping trip into the mountains. Here, instead of improving, he gradually grew worse, and began to lose his appetite. He returned home and consulted a physician for the first time. This physician listened to his symptoms, told him his "stomach was out of order" and prescribed a tonic. Not improving greatly, he consulted another doctor, who said it was his kidneys, when he heard about the swollen ankles. Thus he went the rounds, every one finding something different as a basis for his trouble. In December he came to me. He said he'd been to so many doctors, including an osteopath, who found a dislocated vertebra, a Christian Science practitioner who prayed for him, and a chiropractic who pounded him along the spine with a hammer, that he was willing to try most anything. As the man entered I noticed the peculiar waxy appearance, slightly tinged with yellow, with a peculiar flabbiness of the skin. His lips, gums and conjunctiva were bloodless. Physical examination showed very little except a soft blowing systolic murmur in the pulmonary space, not transmitted to the axilla or upward and greatly increased when the patient rose from the table quickly and lay down again. This I assured myself was a purely functional or hemic murmur. I then proposed a blood count and found all I wanted to know. The reds were 1,400,000, the hemoglobin 40% (Talquist). This was enough for a "spot diagnosis," the color index being much greater than one. There was marked poikilocytosis, the cells appearing in all sorts of fantastic shapes and forms with very few typical. Another prominent feature was the anisocytosis, many of the cells being minute microcytes, others nearer the normal size, while there were large numbers of macrocytes. The delta was very irregular. There was much polychromasia, the cells taking the pe-

* Read at a meeting of San Diego County Society, July 17, 1913.

culiar bluish green color, so characteristic. There were many shadows and degenerates and much pigment. The platelets were increased, the white cells decreased. I searched diligently for nucleated reds and after an hour or so found just one typical normoblast. On the next day in a new smear, I found three megaloblasts and two normoblasts in a very few minutes. Examination of the stomach showed complete achlorhydria.

Differential diagnosis: To my mind there was very little to confound the case with. Of course the achlorhydria and anemia might suggest carcinoma of the stomach but there were none of the very characteristic symptoms. There never had been any pain after eating, the stools were normal color, with no sign of blood, either fresh or of the tarry character. I diagnosed Pernicious Anemia and felt that my therapeutic test fully verified it.

Treatment: I ordered the patient to remain in bed in a screen porch until further directed. He was given acid HCl dilute 20 drops one-half hour after meals and dose repeated in one hour. For the anemia, Fowler's solution in ascending doses beginning with 3 drops T.I.D.p.c. Phenolphthalein was used when the condition of bowels indicated.

Result: Blood smear one week after seeing patient showed many megaloblasts, often three or four in a field. Hemoglobin 50%, red count 2,500,000; the megaloblastic shower continued for more than a week, the reds at this time numbering 3,400,000. I discharged the patient on Christmas eve and he returned to his home in Imperial Valley, the blood at that time showing 80% hemoglob, 4,100,000 reds, with no nucleated forms.

Prognosis: The patient has kept up the HCl but left off the arsenic (temporarily); he has had no return of symptoms—yet. I expect daily to get a letter telling me of a relapse. The disease is fatal in a short time. I may get another response to treatment next time, but in a very few years I expect him to die.

Case II. Young lady, age 14, Miss C., came in February. Complaint languor, and abnormal appetite, very fond of chewing green grass.

Family history: Mother had been in same condition at her age, otherwise negative.

Previous history: Negative.

Examination showed well developed girl, subcutaneous fat slightly increased, with peculiar yellowish-green tinge to skin, eyes very bright. Examination otherwise negative.

Blood count showed 60% hemoglobin, red cells 4,600,000. Very few abnormalities in the cells, except light color.

Diagnosis: Chlorosis.

Treatment: Rest, daily purge and iron.

Result: Complete recovery.

Prognosis. Recurrence of symptoms with final cure.

Case III. Mr. B., age 32, plumber. Complaint, severe cramps in lower abdomen on left side especially. Patient had passed some grit in his urine and diagnosis of renal colic had been made.

Family history negative.

Personal history, negative till present trouble. Patient stated he had only been in plumbing business two years. Present trouble began three weeks before seeing me. Had been diagnosed as previously stated.

Examination showed rather emaciated man, salivary glands and evidently in great pain. Heart and lungs were negative. Abdomen showed pigmentation all over left side from frequent applications. Tenderness all over abdomen. Some sensory changes in lower extremities and patient stated he stumbled occasionally, more than hitherto. There was a very typical blue line along the gums.

Blood: Reds, 3,100,000; whites, 4,100; Hg. 80%; blood smear showed decrease of polys, many lym-

phocytes and a few nucleated reds. The typical thing to my mind was the basophilic degeneration of Gravit. The cells appeared bluish, being stippled with those peculiar dark spots first brought to notice by Gravit and later amplified by Pepper and White.

Diagnosis: Lead poisoning. The blood picture simulated pernicious anemia slightly, but the lead line, sensory changes and colic were typical of plumbism.

Treatment: Magnesium sulphate every other morning. KI, 10 drops, T.I.D.p.c., and tincture of chloride of iron for anemia.

Result: Complete cure.

Prognosis: Patient gave up active work with lead pipes and was promoted to a position of overseer. If he keeps away from lead there will be no return.

Case IV. This to my mind is the most interesting case of all.

Mr. G., age 42, complaint "dropsy" and "general weakness." Former diagnosis "kidney trouble" and "heart trouble."

Family history: Mother died suddenly of "heart failure," otherwise negative.

Previous history: Always well till present trouble.

Present trouble. About a year ago began to notice that his feet were swollen at night so that indentations appeared around the top. Also began to increase in weight. Some time later began to become weaker than usual. Went to doctor who diagnosed "kidney trouble" without any examination of urine. Took some medicine for about a month and gradually grew worse. Went to another doctor who examined urine and finding it negative said he had "heart trouble," gave him a little red pill, probably strychnine, and some bitter tonic. No improvement.

Came to see me first six weeks ago. Examination: Patient had all appearances of a nephritic, swollen eyelids, adematous ankles, pasty appearance in general. Chest was of emphysematous type, movement and respiration normal. Heart unusually good, distinct clear sounds following in normal sequence, with no sign of a murmur. Heart slightly increased in size.

Urine examination: Negative.

Blood: Reds 2,100,000; Hg. 35%; whites 3,100. No nucleated forms.

Diagnosis: Here was evidently a marked anemia, evidently secondary in type. I tried in vain to get at a source for the loss of blood. He'd never had any sort of hemorrhage, either from lungs or stomach. I went all over the man's anatomy, and dug up everything I could to find a source for so profound an anemia. I even tried to get a history of bothrioccephalus latus, the cestode, so often responsible for grave anemias in the northern countries of Europe but as the man had never been further from San Diego than Tia Juana this was rather difficult. At last in despair I asked him if he had ever had "piles," and here I found the keynote of it all. He informed me that he had at times felt some pain on defecation, but wasn't sure. Examination showed a mass of internal and external, bleeding hemorrhoids. So marked was the condition that I at first feared carcinoma, and yet this man had suffered so little that he had never thought to tell the doctor about them.

Treatment. I assured him that a thorough operation would make him a strong man again. He went home and began immediately to prepare for the same. The next day the operation was done, and every bleeding point stopped. He was then put on a thorough course of Blaud's and in two weeks his blood was nearly normal and two weeks ago when he came to my office, his edema was all gone, and his blood picture perfect.

ADDRESS ON THE SOCIAL EVIL.

By CHIEF OF POLICE PETERSEN, Oakland.

It is rather a presumption on my part to address such a learned body as this; it is rather unexpected that one in my position could give you very much information on this question. But I take it that it is the doctors' business to save life—that is what you are for; it is also the policeman's vocation to save life in a smaller sense.

The social evil is agitating not only the people in California, but the whole civilized world, and what to do with this problem is a question of great debate. You are all familiar with the fact that the governor signed a bill a few days ago for the abatement of houses of prostitution. This bill was widely discussed, and was advocated by the so-called reform and religious organizations. I have no fight with the reform or religious organizations, but the question is this: your average reformer speaks of the social evil from an economic or moral standpoint, and it strikes me that the question should be treated from the physiologic standpoint. There has been no time since civilization existed that prostitution did not exist. It first commenced in the early stages of history as a religious ceremonial, and has come down through the ages as a religious ceremonial until the opposition of Christianity was set against it, and in the opposition to prostitution the greatest antagonist are the religious associations. If we could abolish prostitution in the world it would be a great thing, but how, is the problem that concerns us, to be solved? Those of you who are familiar with history will agree with me that no effective law has ever presented itself to diminish prostitution. We have had certain vice commissions that have existed who have presented remedies for this great disease, but when we realize that vice commissions have existed since the 18th century, you realize that we have nothing new. In the 18th century Maria Teresa appointed a vice commission with very extensive powers; they made rules against women appearing in short dresses in cafes, and they confiscated the property of prostitutes and put them in prison. After these rules had been abolished by succeeding rulers of that nation, illegitimacy increased to a greater extent in Vienna than in any other capital of Europe. Wherever prostitution has been suppressed, it has been followed by a tremendous increase in illegitimacy. Our reformers are trying to use exactly the same methods as were employed by Maria Teresa. In England, when such rules were put into operation, the result was to scatter the disease and increase prostitution. It is the same in the United States. To abolish the houses of prostitution causes the scattering of them all over the city and the infesting of the resident districts.

With the conditions that confront us at this time, the question is—what are we to do with prostitution? The abolition of houses of prostitution does not take away the cause; the cause, as you doctors know, is *human desire*. You can sum up the economic conditions, moral and religious, and they do not begin to balance that one great

reason—human desire. You are familiar with the fact that man is a polygamous animal. The chimpanzee and the gorilla, man's biologic next of kin, are monogamous, but man has been and is polygamous. This fact complicates our conditions. You doctors know that the time of man's power to procreate is from 40 to 50 years and that woman has no such length of time. Prostitution exists in our day and age because of the demand for it, and man, more than anything else, is the reason for that demand; it seems to me, therefore, that it is the man's job to meet it. It is more a physiologic proposition than it is a moral or economic proposition. These things complicate it, but the great fundamental is that it is based upon human desire, the greater part man's desire. Our friends the reformers say we should abolish the *houses* of prostitution, and ethically I can agree with them, but how are you going to abolish *prostitution* under present economic conditions? Then there is the question of the superfluous woman. You know that more women are born into the world than men; and with that you have the polygamous tendency of man. We have—in seaport towns like Oakland and San Francisco—a large floating population whose morals are of a low order, who think that the social evil is necessary. You have men from the mills, mines, army and navy, with the desire for sexual intercourse. How are you going to make them continent? If you tell them that they ought to abstain, will it do any good? They have no moral ideas on this subject—no ideas for the time except the satisfaction of their desire.

Do you expect that by the abolishment of houses of prostitution you will prevent these men from satisfying the greatest passion that human nature is heir to? Human nature needs a vent, and so long as the social fabric is as it is, it is futile to expect men to obey the present moral code.

This is one of the greatest problems, and you all know the attending problem of venereal diseases. A great deal more widespread than the white plague is the red plague, but how are we to meet that question? In San Francisco they have a clinic for the treatment of these diseases, and doctors and reformers say it is of little value and a failure because the people who attend it are not properly treated. But should we say that this clinic is a failure if the women who do go there check, even a little, the spread of venereal disease? It is needless for me and for you to say that in this clinic the examinations are made too quickly, for that is so, but the clinic can be made better. If you have a properly segregated district where you can have some control over these women, you can do something for the prevention and cure of these diseases, but if you scatter these women they will go somewhere, and then how are you to handle the situation? It seems to me that these people should be controlled, then this great plague could be checked. But to scatter these people throughout a city is to cover up the sore—not to cure it.

Take, for example, the city of New York. Under the Parkhurst crusade, they drove these women out of their houses into the streets in the middle

of winter, and they scattered all over the city. The result has been the great police graft—the scattering of these houses tends more to graft than any other one thing. In Oakland we have the so-called red light district under regular police control. We do not permit any liquor to be sold there. We believe that there should be a place for these women, and they do not have to pay us for the privilege. In New York, on the other hand, these houses are scattered all over, and the patrolman says to the woman: "You are running a house against the rules of the Police Department; you have got to pay or I will lock you up," and so they levy payment for their privilege. We have in Los Angeles another instance. Los Angeles is not as moral as Oakland and there are conditions there that we would not tolerate. The Chief of Police there is a fine man, and I said to him: "How about your social evil? Have you minimized it?" He replied, "Not at all—we have simply scattered it!" One of our ministers said that he would be glad to have these houses scattered and invade the Piedmont district; he thought it would be the best way to have the prostitute next door to the man who is responsible for her. But you can never control this disease when it is once scattered through a community; but because it is hard, because it is a great problem, there is no reason why every man and woman should not strive for better conditions, and you doctors could stop the advances of prostitution more than anyone else. You do far more than the minister, and upon the doctors of this land will depend the future greatness of the Union. Medicine and surgery, more than any other powers, can stop prostitution, because it is a *physiologic* question. Teaching human kind to change and reform by proper education in our schools and colleges, by getting away from all this false and foolish modesty and teaching young men and women how they are made and what they are made for will do more for the abolishment of the social evil than laws closing houses of prostitution. You cannot make people good by legislative enactment. It is a long job, but it is worth while; and there is no sense in doing things that have been found to be not worth while. When the doctors take hold of the matter intelligently and enthusiastically, we will get somewhere, and when doctors, reformers and theological experts get together, we will be able to solve the problem in America.

REPORT OF A CASE OF RABIES IN WHICH A CHILD BIT HER FATHER.

By RALPH E. ALLEN, M. D., and F. L. HORNE, M. D., Newcastle.

Acting upon the suggestion of Dr. Wilbur Sawyer, director of the state hygienic laboratory at Berkeley, Cal., this paper is presented to the medical profession.

While an epidemic of rabies has been known to exist among the dogs of this community, and several people bitten by such rabid dogs have had the Pasteur treatment for rabies administered to them,

the general public has been apathetic to the dangers of the disease to such an extent that dogs have been allowed to go unmuzzled, a child has been bitten and allowed to go untreated until the symptoms of rabies appeared. It is this case to which we draw your attention with the hope that it may stimulate more active efforts on the part of the profession to educate the public as to the dangers of this disease and the means of prevention.

Case. Florence W., age 6 years. Previous to July 2 the health of this child was normal. On above date she was bitten by a strange dog which disappeared and has not been seen since. The bite consisted of one wound located on posterior aspect of the left forearm one inch below the elbow joint. The bite was one-half inch in length and was not intercepted by clothing. Healing of the wound occurred without the development of any infection.

Symptoms of attack: Tuesday, July 22, patient showed anorexia and a general feeling of distress in the abdomen. General malaise evident all day Tuesday, the 22nd.

Wednesday morning general nervous irritability developed. Vomiting set in and continued at hourly intervals throughout the day. Patient evidenced great desire for water which upon drinking caused vomiting.

Saliva drooled from mouth throughout the day. Dilatation of pupils occurred. Patient slept poorly Wednesday night when dyspnoea developed.

Thursday showed extreme restlessness with beginning incoherent speech and movements. Pulse rate Thursday, 8 a. m., 104; temperature, 101°. Temperature, 4 p. m., 104°. At 8 p. m. it had dropped to 102° F. Pulse at 11 p. m., 200.

Marked delirium developed Thursday evening. Patient picked at and tore her finger nails. Expression of terror on face. Constant thirst was present but attempts to drink not only caused vomiting by now, but spasm of the glottis. No edema of glottis was detected. The whole musculature of the throat became spasmodically contracted and the water was forcibly ejected.

Expectoration and vomiting of a dark bloody material occurred at times Thursday evening. Examination of nervous system showed no Koenig sign. Knee jerks were present.

About midnight Thursday patient bit her father at the carpo-metacarpal joint of index finger on left hand. The bite occurred in an already open wound which fact necessitated the father having to undergo the Pasteur treatment. He is now receiving this at Berkeley under the supervision of Dr. Sawyer.

The little girl received two injections of morphine Thursday night, grain one-sixteenth at 10 p. m. and grain one-eighth at midnight.

The first dose had no effect. The second one caused her to lapse into a semi-conscious state. During the last five hours of life, the head was thrown back on the pillow and the chin raised, due to a spastic condition of the muscles of the neck. Death occurred at 5 a. m., Friday.

In the experience of the writers the period of incubation for both human beings and dogs is within a month. This is variable, however, as has been shown by Sawyer and Gundrum at the hygienic laboratory at Berkeley. According to these investigators it may last a year.

HEMA-URO-CHROME—A NEW LABORATORY TEST FOR CANCER AND SARCOMA; FROM THE URINE.

By THEODORE G. DAVIS, Ph. G., M. D., Los Angeles.

A preliminary report under the above title was published in *The American Journal of Medical Sciences* June, 1913. The number of requests for reprints and details in the application of the test, leads me to prepare this paper, eliminating the comparative tests and adding suggestions and details which queries of correspondents appear to make desirable.

Another incentive is the great interest manifested at the recent Minneapolis meeting of the American Medical Association in regard to cancer.

When reliable statistics show that more than 75,000 persons die annually from cancer in the United States alone; that the death rate has doubled during the past 40 years; while careful clinical and surgical observations and records show that from one-third to one-half or more of these might have been cured by early treatment; certainly there is sufficient reason for presenting a test which will give evidence of a malignant growth before it can be seen, determined by palpation, or by any other method with which I am acquainted. It is well known that any treatment of cancer to be successful must be instituted early in its existence, the earlier the better. This depends upon an early diagnosis. Late treatment cannot be anything but palliative. The beginner should procure the urine from an authentic case of cancer or sarcoma, and acquaint himself with the color reaction, after which errors are less likely to occur.

The urine should be carefully collected, fresh, no preservative should be added; unless when it is impossible to make immediate examination, Hydrochloric acid in the proportion of 1 part to 10 of urine may be added, this being the proportion used in the test. Formaldehyde inhibits the test; and hexamethylin tetramin, formin or urotropin should be avoided where the test is to be applied.

After many experiments extending over considerable time, I determined the following to be the most satisfactory method of procedure. (While the quantity may vary, the proportions should be maintained.) Select a flat bottomed flask of about 180 cc.—or 6 fl. ozs. capacity, with a narrow neck that the ether may be brought up into it, easily seen and separated.

To 100 cc. of urine in the flask add 10 cc. of hydrochloric acid.

Heat over a slow fire until ebullition begins; turn out the fire, and allow it to cool slowly for a time, after which cooling may be hastened by immersion in water. When cold add 30 cc. of ether, cork, tying the cork to prevent evaporation. Turn the flask upside down several times during the six or eight hours required to complete the test. Avoid hard shaking which interferes with separation of the ether. While in cases of pronounced or extensive cancer the ether will acquire a markedly red color in as short a time as twenty minutes, I have found six or eight hours required

for the complete extraction of the Hema-urochrome by the ether. By the addition of cold water, the colored ether may be raised into the neck of the flask for observation, and be removed by a pipet into a bottle, corked, sealed and kept for comparison, if desired.

As a certain amount of the ether remains in solution by the contents of the flask, and some is lost by evaporation, I have depended upon the relative depth of color extracted by a certain quantity of ether from a definite amount of urine and hydrochloric acid, by the process described.

It might be possible by adding ether to the contents of the flask to replace that lost, making the quantity removed up to 30 cc. and make colorimetric comparisons, as is done in other color tests; but I doubt if it would be of any great value, for when some of the ethereal solution is allowed to evaporate in a white dish, the red hema-urochrome will be seen upon the upper portion, indican, when present, as an indigo-blue ring, slightly lower, while bile-acids and coloring remain in the bottom as a sticky brownish yellow mass. These in varying proportions must of necessity produce different tints; beside which the cleavage of hemoglobin into globulin and the several cleavage products of hematin, of which there may be at least three containing iron, and several not containing iron; indican, bile-acids and coloring, at times fatty substances of the amino-acid group, as well as crystals of ammonium chloride and urate, all of which modify the color of the ethereal solution. While the latter have pathologic significance, this simple test yields us three substances of considerable significance when in excess, viz., indican, bile-acids and coloring, and the hema-urochrome. That these represent a pathological physiology, there can be no doubt. The red hema-urochrome of cancer is so pronounced, it astonishes the beginner; and occurs even with small growths not otherwise discernable.

Herein lies the great value of this test which enables us to make an early diagnosis, and apply treatment at a time when there is hope of cure.

That this hema-urochrome is produced by cleavage of hemaglobin by a product of the cancer cell, probably an enzyme, there is little doubt; but as the chemistry of the uro-chromes is so complicated, and statements concerning them so conflicting, I leave this for future investigation.

I am not aware of the previous application of the uro-chromes in the diagnosis of disease; except Erlich's aldehyde test for insufficiency of the hepatic cells, which should be applied to the urine under examination for cancer. (It is prepared and used as follows: Para-dimethylaminobenzylaldehyde 4; alcohol 16; water to 200. A few drops in 4 cc. of urine, when heated, becomes cherry-red if hepatic insufficiency exists.) This color is quite different from the red hema-urochrome of cancer. It aids in the elimination of cirrhosis of the liver, which is one of the confusing disease factors in all sero-diagnostic tests for cancer. Beside this I have found syncytioma, which is practically a malignant condition, and extensive suppurating processes, es-

pecially if tubercular, to give a somewhat red color to the ether, but not to compare with that given by cancer. A pink tint of more or less depth will occur when blood is in the urine from any cause; also in the urine of persons having malaria, "tick-fever" or Babesia, the several infections due to spirillum; "hookworm" and other intestinal parasites, as well as the primary and secondary anemias; but none of these give a color comparable with that from the urine of a cancer patient, and should be readily eliminated.

It is well to remember that all laboratory tests are suggestive or confirmatory and liable to a percentage of errors, yet this test has proven positive in a larger percentage of cases than any other with which I am acquainted; even when the cancer was very small and unsuspected, not determinable by palpation or other diagnostic method. Again a negative finding will enable us to relieve that mental distress associated with a suspicion of cancer or of its recurrence.

PHYSICIANS' ASPECT OF SUNDAY CLOSING OF PHARMACIES.*

By A. S. M'SANTE, Ph. G., M. D., San Francisco.

In this paper I will consider the public's as well as our standpoint as regards the closing of all drug stores on Sunday afternoon, as was recommended by the California Pharmaceutical Association at its last meeting.¹

My discussion of the subject dates back about one and one-half years ago, and a paper entitled "Sunday Closing of Pharmacies: Physician's Plea to Make It Alternating"² was read last year at Del Monte before the above-mentioned organization. The latter, however, as intimated in the opening paragraph, did not take kindly to the suggestions made, probably because they were not considered as being of interest to many. But a month or so after my recommendations were presented to the pharmacists, I was surprised to find in the monthly meeting bulletin of the San Francisco County Medical Society a note to the effect that complaint of the inconvenience that was being caused by the general closing of drug stores on Sunday afternoon had been received at the office of the Society. These protests, which were independent of my agitations, fortified the position I had taken and urged me to bring the matter before the Medical Society of the State of California. I was further stimulated by the endorsement given to my ideas by Dr. Albert Schneider, editor of the *Pacific Pharmacist*, who has championed my attitude in the pharmaceutical press.³ The latest prescriptionist that I find advocating reform in this matter is J. M. Riden, whose paper I have only just read,⁴ and his conclusions I can sum up best with this quotation, "The practice of Pharmacy, by its nature and relation to the public, precludes absolute Sunday closing, unless some system is devised whereby the public could be served at all times."

My object in working out this matter is that, having been a pharmacist for a number of years immediately preceding my study of medicine, I am

very desirous to bring about the greatest possible co-operation between the pharmaceutical and medical professions and the public, and have already had the pleasure of presenting a paper on "Medico-pharmaceutical Ethics,"⁵ which had the object just mentioned in view.

The desirability of pharmacists obtaining adequate rest and freedom from the trying conditions surrounding their calling is admitted; in fact, is always advised and insisted upon by the writer. Therefore, for the sake of brevity, the need of this respite for the members of the profession will not be reviewed. The purpose of this paper is to suggest how the public can be safeguarded from lack of accommodation in emergencies by indiscriminate Sunday closing of drug stores. And I am sure that the best element of legitimate pharmacy will be found more than willing to do all in its power to help the physician conserve the sick from the results that will ensue if imperative and potent remedies cannot be obtained, especially in those cases that occur suddenly and without warning. There is already general evidence of this desire to serve, as is demonstrated by many pharmaceutical establishments in the larger cities that keep open all night and day—except Sunday afternoon! The principal reason given for this "owl" service is that it will be possible to meet urgent demands for prescriptions and other medicinal and surgical articles at any time of the night. But, Sunday afternoon, when all drug stores are closed, is the time when there is a good deal of riding (to the public parks, to and from ferries and depots, etc.), which makes the occurrence of accidents frequent. Of course, the causes that make night opening desirable, like cases of confinements, diphtheria and poisoning, occur also on Sunday afternoon, as they do at all times. Does it not seem, then, inconsistent that the pharmaceutical profession should offer adequate service in the darkest hour of the night, but not on Sunday afternoon?

Attempts at Sunday Service.

It will not be amiss to cite a few methods that have been in vogue in different localities to supply what must have been considered necessary service on Sunday afternoon.

San Jose, according to report,⁶ had inserted in the agreement for Sunday closing of drug stores an emergency clause, whereby prescriptions and other articles that were absolutely necessary could be supplied at any hour, including, of course, on Sunday afternoon.

R. A. Leet, of Oakland, speaking on this matter,⁷ says that in the establishment he is connected with each man takes his turn to attend to the emergency work on Sunday, so that once in eight weeks every man is on duty, his telephone and address being placed on the closed door, so that he can be called for in urgent requirements.

According to page 417 of the *Pacific Pharmacist*, the San Francisco *Call* is authority of the statement that in Los Angeles the retail druggists have divided the city into districts and that those in each section take their turn in keeping open on Sunday, while a notice is posted on the closed doors directing the public to the place that is open.

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

I was told that the same system prevails in Redwood City.

Recommendations.

Now that I have reviewed some of the efforts made to supply the public with adequate emergency service on Sunday and still enable the pharmacists to obtain as much rest as possible, it seems in order to suggest some general plan for adoption, with the hope that if any improvement can be made it will be forthcoming. For large cities, I advise that there be a division into sections of appropriate size, such as would be exemplified in San Francisco by North Beach, Golden Gate Valley, Richmond, Mission, Potrero, Hayes Valley, etc., and that the pharmacists in these areas arrange to keep open on Sunday afternoon and, if advisable, Sunday evening, also, in the order agreed upon, the closed stores directing the people to the establishment that is open. Such co-operation for the safety of the public would elevate the ethical standing of the profession and the general opinion of the regard and function of the pharmacists toward the suffering. Physicians would also appreciate the aid it would be to them as a means of obtaining pharmaceutical articles desired suddenly. It is not noble to treat this matter with a shrug of the shoulder and say it is impossible to get the pharmacists to agree to any improvement upon present methods. The very fact that Sunday closing has succeeded so well in our metropolis is proof that a majority of the prescriptionists stand ready to assist whenever a worthy and unselfish movement is started. What sacrifices are made along the lines indicated work toward the co-operation of medicine and pharmacy in the relief of suffering humanity.

The substitutes for alternating Sunday closing are many, as has already been seen in the references made to them. Personally, I feel that it is better to have all drug stores keep open all day Sunday than to have the safety of the public jeopardized. But if all drug stores *are* to be closed on Sunday afternoon, the telephone number or address to be used for urgent summons should be left on the closed doors. In large drug stores in districts where no agreement for alternating on Sundays is decided upon, each clerk should take his turn, but a respite on another day should be allowed. I have made no effort to recite the many ways the situation may be met, but have called the attention of the profession to a matter that I think should be given prompt and efficient treatment, so that the highest degree of usefulness to the stricken may be developed. To this end, I wish to conclude by submitting the following resolutions for adoption:⁸

Whereas, There is a tendency on the part of the retail pharmacists, in their desire to obtain needed rest, to close all drug stores on Sunday afternoon, which custom was unqualifiedly endorsed by the California Pharmaceutical Association at its last annual meeting, and

Whereas, There are many emergencies that occur on Sunday afternoon that could be more simply and, often, more safely handled if the drug stores in every small town and in the several sections of

the larger cities arranged to keep one pharmacy open all day Sunday; therefore, be it

Resolved, That the State Medical Society of California, while not opposed to the propaganda of securing adequate rest for the overworked pharmacist, recommends that alternating Sunday closing of drug stores be established where possible, so as to furnish the sick and injured in every locality with the benefits afforded by a drug store; and be it further

Resolved, That a copy of these resolutions be forwarded to the California Pharmaceutical Association with the request that it take similar action and co-operate in every other way possible in this reform.

References:

1. Proceedings C. Ph. A., 1912.
2. Proceedings C. Ph. A., 1912, or Pacific Pharmacist, May, 1912, or S. F. and Pacific Druggist, xvi, No. 2.
3. Pacific Pharmacist, July, 1912.
4. Pharmacraft, April, 1913.
5. A. S. Musante, Pacific Pharmacist, 1910, iv, 92, or Jour. A. M. A., 1910, iv, 1082, or Practical Druggist, 1910, xxviii, 124.
6. "Sunday Closing," Pacific Pharmacist, iii, 479.
7. Pacific Pharmacist, iv, 112.
8. These resolutions are practically the same as those unanimously adopted by the San Francisco County Medical Society, May 13, 1913.

ATROPHY OF THE PROSTATE GLAND WITH CITATION OF CASES.*

By HOWARD SOMERS, M. D., San Francisco.

No organ in the human economy, with perhaps the thyroid excepted, is exciting more interest pathologically and surgically than the prostate gland, because in the latter few men of advanced life preserve the normal size and character of this gland. We have studied so attentively the hypertrophied condition that its antithesis—atrophy—has suffered by comparison, and there appears but little literature to recognize, diagnose and treat this condition. Statistics of authors show, however, that the condition has been observed and too without an infrequency. Thompson in his 67 cases, quoted 56 hypertrophied while 11 were atrophied; Messer 35 hypertrophied with 20 atrophied; and Ditiel out of 54 cases, 18 were hypertrophied and 36 atrophied.

In the atrophied condition we find the gland of a white or a grayish white color, hard and resistant, in marked contrast to the normal yellowish, porous, spongy, elastic prostate. The size is smaller than the normal, averaging about 250 grains in weight. The capsule is hard and firm and densely adherent. The sheath and fibrous connective tissue of the perineal outlet in general are more dense and tough, rendering the identification and isolation of the perineal structures more difficult. The surface of the gland is very irregular. The direction of the urethra is distorted, but not much increased in length. Bryan has attempted a classification of the causes of the atrophied condition of the prostate gland, as follows:

1. Inflammatory.
2. Atrophy of wasting diseases.
3. Atrophy caused by pressure.
4. Congenital form.
5. Senile form.

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

The senile form, which concerns us here, is by far the most common of the atrophied varieties. Thompson says it is the resulting phenomenon of regressive metamorphosis. Senile atrophy like hypertrophy, presents rarely before 50, sometimes before 40. There are instances at 17, 22, 26 and 33. At first the glandular and later the fibromuscular structures become involved. Both sides of the gland are usually affected. Bryan states as etiological factors: (1) pressure of passive congestion, (2) early excessive venery, (3) senile retrogression and arteriosclerosis.

Symptoms. In the lighter cases there are very apt to be no symptoms, but in the more severe a distressing and unrelenting condition prevails leading to profound constitutional symptoms. At the beginning of the progressive state the patient will complain of enuresis, diurnal and nocturnal. The individual evacuations of the bladder are less than normal only more often repeated. Later appear a post-urinal leakage and pain in the perineum radiating along the course of the urethra to the glans penis. The cause of the frequency appears to be not a congestion, as in prostatic hypertrophy, but the initial expression, as Groszlik says, of the disappearance of the governing nerve of the prostate and particularly those ganglion cells lying in the periphery of the organ. At the beginning of the disease there is no change in the urine, but later infection comes in spite of the most rigid precautions to the contrary. The residual urine and dribbling are due to gradual increasing atonic weak internal sphincter. The muscle ring loses its tone due to a gradual disappearance of the glandular elements. Then follow impotence, insufficient erections and non-motile spermatozoa due to absence of prostatic secretion. In some cases the semen regurgitates into the bladder, which seems to prove that in normal cases the regurgitation of the semen is not prevented by the congested caput but to the internal sphincter, caused by a defectiveness in its action. An invasion of bacteria from the outer world sets in, resulting in a severe cystitis. The bladder becomes early uncompensatory. The attacks of acute retention with marked and painful onsets of frequent urination gradually increase in severity. The cystoscope will show a chronic cystitis, a diffuse capillary injection, and a velvety-like appearance of the mucous membrane with scattered yellowish spots of desquamation.

An examination of the prostate per rectum finds the organ small, not painful or sensitive, the surface generally irregular and nodular. The normal active resistance offered to the urethral sound is lacking; it falls readily into the bladder, the urethral length is not increased.

The question now arises: How are the clinical symptoms so definite with the unimportant changes in the sphere of the prostate? A question that has for some time drawn the attention of many authors and has been the object of much spirited discussion, especially so by the French authors. Mercier asserts that the bladder insufficiency exists in atrophy as well as in hypertrophy, but that

there is a distinction in the cause in that by hypertrophy the middle lobe plays the role of a valve, while in those cases without enlargement of the gland—atrophy—we have a cross muscle band which passes behind the lip of the urethral opening of the bladder. This is the celebrated valve of Mercier which in the older text-books took an honored place. In spite of its existence it was held by many authors in dispute. This position was maintained, however, until further studies of senile bladder insufficiency under the French school brought about a complete change of idea, Gunion maintaining that the underlying cause lay in the bladder whose walls had undergone sclerotic changes secondary to a general sclerotic condition. The degenerate bladder wall being the chief cause of the insufficiency, while the prostatic change was only a secondary cause. At the present time the Gunion theory belongs to history only for one reason at least if for no other and that is that it is now established that after the abnormal prostate is removed the bladder regains its ability to again normally functionate. Ciechanowski thought that the cause of bladder insufficiency with prostatic atrophy lay in the atrophy of the muscles. It is not yet established by some authors whether in atrophied prostate a condition of mechanical obstruction exists at the bladder mouth. In a far reaching and exhaustive report by Englisch, following a train of clinical and anatomical pathological observations, he attempted to prove that the posterior lip of the inner urethral opening is the natural support, that said muscle, existing in the normal, is changed in the atrophied condition to a fibrous band which arose at times to the dignity of a middle lobe, producing thereby a valve-like aperture which prevented the free out-flow of urine. It is claimed, however, that Englisch had in mind the young individual with the congenital atrophied prostate and not the acquired atrophied gland of the old.

Fuller, Chetwood, Keyes and later Cholzoff maintained that in their experience a chronic contraction of the neck of the bladder, principally found in the young, was the cause of bladder insufficiency without an incorporation of the prostate.

Albarran and others of the French school, in their discussion at the First International Urological Congress in 1908 over urine retention without mechanical obstruction, showed a group of cases in which a change in the bladder existed but failed to make clear why such conditions existed but mentioned that a possible cause was a contraction of the bladder neck brought about by reflex inhibition (vesicle). As to the starting point of the reflex and the method and manner of its contractility of the bladder, nothing definite was elicited. Nevertheless, they cautioned against the removal of a not enlarged prostate because the operation brought about no improvement of the functional ability of the bladder.

These facts standing out as they do, present only a grievous deficiency of a knowledge of the pathologic condition and therapy of bladder insufficiency without prostatic hypertrophy.

Treatment. Beyan advocates, in the early stage, a methodical and general insertion of a large urethral sound to combat the weakened sphincter which he claims exercises a very favorable influence, if early instituted, upon the very annoying urinary frequency. Such conditions as posterior urethritis, strictures, vesical and prostatic calculi, tumors and cysts must be treated.

One finds in the literature small notes that some surgeons, as Legner, Dilbet some time after removal of small glands of 10, 15-20 gms. weight have obtained good results. Barrima, indeed, at the First International Congress of Urology, showed a successful extirpation of an 8 gm. prostate. Shall we, then, as Albarran suggested, do nothing and permit the patient to live a life of intolerable suffering? It would seem, if the conditions are favorable, an operation to remove the obstruction should be done.

The suprapubic, perineal and Bottini are the operations of choice. Bottini's operation is now seldom employed, as it has not fulfilled the hopes anticipated. The results are not permanent, not only when employed in the hypertrophied condition but also in the very slight pathological changes in the bladder.

Gloglik favors the Freyer operation, the suprapubic route, claiming as he does an easy road to the bladder neck and enabling all pathological changes of the inner urethral opening to be seen and removed, but admits the technic is definitely more difficult than in the removal of the hypertrophied gland. He discredits the perineal route and as far as efficiency is concerned puts it in the same class as the Bottini operation. Young of Baltimore claims that just in this atrophied condition is his operation for the removal of the gland most applicable, and his method is the one we have employed with good results.

In our work of 26 cases of bladder insufficiency of the last year, 19 were due to hypertrophy and the balance, 7, due to atrophy. The report of three of the latter will suffice to show the conditions that, in a general way, existed in the entire seven.

Case i, J. H., 72. Complained of frequency of urination, arising on an average of 12 times nightly to pass his water. This condition began about three years previously and has been gradually getting worse until his condition was most distressing. Pain, tenesmus and, as stated, the great frequency of urination.

Examination per rectum revealed a small nodular not oversensitive prostate. The prostate seemed about the size of a hazel nut and approached to some extent a stony hardness. Cystoscopic examination showed a rather small unevenly outlined prostate with no appearance of hypertrophy. A considerable degree of trabeculation extending well over the entire bladder wall. Residual urine 4 oz. After a month of palliative treatment, with no improvement, an operation was performed.

Under spinal anesthesia and following the Young technic for prostatectomy, the gland was removed. Its removal proved long and tedious, due to the hard fibrous nature of the gland. The patient had absolutely no shock. With the retaining catheter in the fistulous opening for drainage, the patient was put to bed with orders for giving internally urotropin and the washing of the bladder every two

or three hours with a warm solution of boric acid. The drain was removed the second day. The patient was up and walking about the third day, and the perineal wound closed on the 17th day. There were absolutely no complications at any time such as hemorrhage or vomiting from nausea.

The patient's condition at the present time he claims is much improved. From arising 12 times nightly, he arises now two to three times, and his residual urine has decreased to about two ounces.

Case ii, J. W., 68. Laborer. Complained of frequent urination—four to five times during the night and every hour during the day. Began to arise at night to pass his water three years previously and this condition has gradually grown worse, until symptoms such as a weak, small stream, pain at beginning and end of urination, urgency and delay in starting the stream. The patient's general condition appeared fairly good. The kidneys not tender or palpable. The urine full of pus and broken down epithelial cells and mucous. No albumen, no sugar, no casts. Bladder capacity eight ounces. Residual urine three ounces. The patient's condition in spite of some six months' palliative treatment, such as washing the bladder and repeated stretchings by hydraulic pressure, passing of sounds, continues about the same. The examination per rectum indicated that both lobes were hard, smooth and hazel nut in size. The cystoscope showed a high degree of trabeculation, numerous and deep trabeculae and diverticulae, deep redness of the bladder mucous membrane and, further, no appearance of hypertrophy at the inner urethral opening.

As stated above, no apparent improvement detected, an operation was suggested which the patient readily agreed to. Identically the same technic as described in above case was carried out. The gland was removed. It weighed not over 10 gms. No bleeding or other complications. Patient up and about in a few days. His fistula closed in 25 days. It is now nearly one year since the operation. Patient says his bladder gives him no trouble and he arises but once at night to pass his urine.

This case is remarkable from the fact that without any apparent mechanical obstruction at the inner urethral opening there should be such a pathological change in the condition of the bladder walls.

Case iii, G. T., 46. Porter. Came complaining of intense burning and frequency of urination of about 12 years' standing. Family history is good. Has always been well and strong until his venereal history began. He has had gonorrhea many times, involving the posterior urethra. Many series of chancroids and patient thinks "some of these must have been chancres."

Twelve years ago the patient began arising at night five and six times and during the day every three-quarters to an hour. This condition had continued all these years in spite of many and varied forms of treatment. He had the characteristic symptoms such as pain, burning and tenesmus on urination, great urgency, a general feeling of ill-being. His general appearance seemed excellent, full, healthy and robust looking. No pain in kidney region—not palpable or sensitive. Urine—no casts, no albumen, but full of pus cells, mucous and epithelial cells.

An examination of prostate showed a prostate hard, nodular, borders sharp and well defined, not particularly sensitive. The cystoscope showed a prostate whose lines were uneven, somewhat simulating the broken teeth of an old saw, a considerable degree of trabeculation and no diverticulae. The trigone was quite heavily injected. The urethral openings normal.

After several months of sounds, bladder washings, dilations of the bladder and instillation at the neck of the bladder, an operation was advised.

The Young technic followed as above. The

post-operative treatment also as above was carried out. The third day a slight hemorrhage from the wound took place. A thorough washing of the bladder with boric acid solution and a repacking of the wound brought a complete stop to this much troubled condition complained of by various authors.

The patient continued to improve, was up and about on the fourth day. It is now almost one year since the operation, the patient says he feels fine, arises but once at night to pass his water, and only four times during the day. The urgency, pain, tenasmus has left him entirely. His sexual power, so he claims, is fine.

Conclusions.

1. The clinical features of bladder insufficiency are very little distinguished between atrophy and hypertrophy.

2. The cause of the bladder disturbance due to atrophy is not clear, some authors believe it is an anatomical change in the bladder wall, an arteriosclerotic degeneration after Guyon; an atrophy of the bladder muscle after Ciechanowski, while others maintain that the cause of the insufficiency rests in the change in the bladder opening whereby the role of a mechanical obstruction is played, a valve at the inner urethral opening after Englisch. Fullers, Chetwood, Keyes, Cholzoff believe the condition is due to a chronic contraction at the neck of the bladder; and finally, such authors as Albarron, Janet and Bazy attribute the cause of the insufficiency to a contraction of the neck arising reflexly.

3. The symptoms of mechanical obstruction due to atrophy cannot be distinguished from those of a mechanical obstruction due to hypertrophy.

4. The anatomical standpoints are, nevertheless, of both conditions atrophy and hypertrophy of the prostate entirely different. The hypertrophied gland is easily enucleated. There is a deviation of the urethra and a barring of the bladder opening which hinders the free outflow of urine. In the atrophied gland the adenomatous condition is wholly wanting. The obstruction to the bladder opening comes probably following atrophy of gland canals when a change in the proportion of the gland tissue and stroma take place.

5. The treatment of the bladder insufficiency due to prostatic atrophy should be a radical removal of the diseased tissue surrounding the inner opening of the bladder. The operation for the removal of the atrophied gland either by the suprapubic or the perineal route is much more difficult than the hypertrophied gland due to the fact that in the former there is no adenomatous tissue and the hold on the surrounding tissue extremely firm.

TRAUMATIC HYSTERIA.*

By JAMES T. FISHER, M. D., Los Angeles.

This paper consists of an analysis of thirty cases of so-called traumatic hysteria, which have come under our personal observation in recent years. Rather than report each case in detail, we will discuss only some of the dominant symptoms, the

majority of which were found in all the cases wherein paralysis occurred. One-third of the series showed no paralysis.

No attempt will be made to enter into a long disquisition relative to hysteria in general except the symptoms which are herein referred to.

As we all know hysteria in major or minor form is relatively common and often masquerades under one heading or another, imitating, as it often does, organic disease. We have often had occasion to change the diagnosis of a sprain, even a broken back, to plain hysteria. We sometimes see an extremity bandaged and splinted which only makes the psychosis worse, and in no small degree intensifies the existing hysteria.

For many years we have felt that the terms traumatic hysteria and traumatic neurosis are incorrect appellations and should be entirely discarded. They do not stand for any disease entity. We all know that a hysteria may follow a traumatism, but even so, it differs in no respect from the same disorder due to other causes.

We do not believe, as has been advocated by Babinski, that the disorder is due to suggestion. The practical question in relation to these cases is, how soon after traumatism did they develop? If immediate, it is almost certain that they existed before, and a thorough study of the antecedents of the individual will often reveal such data. Some of our cases were not typically pure hysteria but were mixed in varying proportions with neurasthenia and one indeed showed a bit of malingering.

Hysteria, traumatic or otherwise, always has certain definite earmarks known as stigmata. We are fully of the opinion, especially in traumatic cases, that no stigmata, no hysteria. With regard to these stigmata without doubt the limitation of the visual field through which the patient sees as through a keyhole, may be regarded as the most important of the different stigmata to which we will allude, and was found in 25 cases in this series. Next, we may regard a lessening or diminution in tactile sensibility on one side of the body, very often the left side, which we speak of as hemi-anesthesia. There is absolutely no possible organic cause for this condition, except in rare cases from lesions in the posterior part of the internal capsule, and if such lesion did exist we would have a very different group of symptoms.

The next most important sign in our experience is a mono-plegia affecting one leg or one arm often on the left side. Over this paralyzed area we invariably found sensory disturbances which were not noticed by the patient until his attention was called to it—which was a loss of sensation over the entire part paralyzed to where the member joined the body. In three of our series this disturbance of sensation was to touch, temperature, and pain. In other cases it was merely a loss of sensation to touch. As we all know, this does not correspond to any definite nervous distribution and was, as is sometimes seen in alcoholic neuritis, a stocking or glove termination. In thirteen of this series the symptom known as globus was quite evident, this meaning that the pharyngeal wall partakes of the same degree of anesthesia which is

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evident in other parts of the body, and attempts at deglutition are repeatedly made, and occasion the symptom. Many of these patients spoke of a tight or clutching sensation in the neighborhood of the pharynx.

Aphonia was present in four cases—a condition wherein the speaking voice is entirely lost but the patient is able to whisper. Vise-like contractures occurred in five cases wherein one extremity was paralyzed. Astasia abasia, a curious condition wherein the patient could make all the movements of walking while lying on his back, but when he attempted to stand, all power of his extremities seemed to leave him. The mental examination in the series seems to show a placid exterior with a considerable amount of suppressed or pent-up emotion together with a degree of suspicion which was sufficient to make one consider the development of a psychosis.

A great desire was evident on the part of the patient to be examined or to allow himself to be shown at the clinic so that he could illustrate how badly he was hurt, and a morbid craving for sympathy.

Most of the series were suggestible to an alarming extent and could be thrown into deep hypnosis by an individual unaccustomed to bring about this form of induced sleep. Indeed suggestibility is the underlying characteristic of the hysterical mental state, traumatic or otherwise.

An illustrative case is that of a young man of 29 years with a face which would stamp him as a neurotic. He falls off the car on the 1st day of January. The tumble is a gentle one. He does not promptly get up and is assisted by several who ask him if he is seriously hurt. Of course he does not know, but because his shin hurts a little and because of the excitement incident to the occasion, he yields to the suggestion of the police and others, who rush him to a hospital. He is duly examined by the doctors, nurses, and other attendants. A flaccid paralysis of the lower extremities develops. In addition he has retention of urine for a few days and has no sensations in his legs and thighs to the point corresponding to Poupart's ligament. He is unaware of this sensory trouble. Reflexes normal. He is told that he is seriously ill and promptly somebody suggests to him that he has a good case against the railroad company and can secure a big fee from that corporation. The suit is begun and the many examinations only fix more firmly the idea that he is permanently paralyzed, and will never get well.

The picture which I have drawn is only one of many of which I might speak. The question immediately arises, "Why did the man have the paraplegia? Why do the legs possess no feeling and why does he have a temporary retention of urine?" The most natural thought is that he is suffering from a broken back or from disintegration of the spinal cord. But examination does not show findings corresponding to a lesion in cord.

As a matter of fact this poor neurotic had the material for the trouble when he fell off the car and the fright together with the other suggestions made to him while in this morbid state of mind, produced in his cortex a certain disturbance by

which his memory for motor movements in his lower extremities was buried or otherwise obscured and the entire mechanism disordered. There are many theories to explain the mechanism for this psychosis. The writer feels there is just as much limitation of the field of consciousness as is evident in the limitation of the visual field. Sensations are received and perceived but are not transferred to the domain of personal consciousness. The blind see and the numb feel. Loss of sight is purely psychical. Through some process, the images while really perceived, do not mix in with associated ideas which make up the individual's personality. The conscious mind is only occasionally aware of what is going on in the sub-conscious mind. The conscious mind is oblivious of what its neighbor is doing. By this hysterical symptoms can be explained.

When we recognize, and often we do not, that we are dealing with a disorder purely mental, in which there is no organic change in the nervous structures, any more than one could find in any case of acute insanity, we should not forget that physical measures such as splints, etc., have never cured psychic disorders, except through that peculiar process called suggestion.

Psychic methods are the only methods that can cure psychic disorders. We believe that the patient cannot have hysteria without being congenitally pre-disposed and the physical injury in and of itself has little, if any, to do with the etiology.

Hysteria results from emotional shocks, as is evidenced by the fact that it is also present where the patient merely thinks he is going to be injured. We know of but one case in which the disorder continued for years after adjustment of the lawsuit. The reason recovery takes place so quickly upon adjustment is, that the emotional situation changes. Joy replaces fear, worry, and anxiety and starts the sympathetic system working properly.

The simile which the writer is wont to use is that the patient gets on to the car with his pockets full of powder and that the accident is merely the match which ignites the powder, which powder was in his pockets years before he entered the vehicle.

In closing, the writer wishes to make a plea for a radical change in the treatment of this disorder, and believes, and has indeed proof, that when the patient is in such morbid state of mind this elusive organ should be placed, so to speak, in a splint and kept absolutely at rest. If, after the accident, the patient is quietly isolated, removed from his friends and family, instructed that he must lie perfectly quiet and not converse, supplied with a nurse who can control her own mechanism of speech and under the medical care of a physician who understands the disease, we would hear very little of persisting traumatic hysteria.

Instead of this he always gets sympathy, his complaints are received as though they represent real organic trouble and instead of rigid discipline, he is allowed to follow his sensations and nurse his disease; he becomes a chronic invalid. He is fed on indulgence and morbid suggestion which is the food which fattens the disease.

THE UNDESCENDED TESTICLE: REPORT OF TWO CASES.*

By R. L. RIGDON, M. D., San Francisco.

The testicle in its migration from its point of origin in relation to the kidney to its ultimate destination in the scrotum may stop short in the journey at any point along the main traveled highway, or it may wander into inviting bypaths and find lodgment in out of the way places and there take up its permanent abode. In the former case it is spoken of as an undescended testicle and in the latter as a wandering testicle. With the latter variety we are not concerned at this time, but will spend a short time in considering some of the questions arising out of the former variety.

In every male the testicle must undertake this journey and its time schedule is fairly well fixed. In the vast majority it reaches its home in the scrotum by the time birth is accomplished. Sometimes it is a little delayed and does not put in its appearance for a month or two after birth. In this latter case, if examination is made the organ can be felt in the inguinal canal or near the external ring, and its power of migration is so certain that it quickly completes its journey.

Undescended testicles have been classified according to location, as abdominal, inguinal, scrotal; the terms indicating with sufficient clearness their meaning.

Normally the testicle undergoes a progressive development as the growth of the body makes demands upon it, but the development, like the descent, may stop short at any point and it is exceedingly important to remember that the development is decidedly interfered with if it fails to migrate to its natural resting place. In other words, an undescended testicle is an undeveloped testicle. There are those who put it the other way round and state an undeveloped testicle means an undescended testicle, claiming the lack of development is the cause rather than the result of the faulty migration. Be this as it may, the fact remains that a normally and fully developed testicle is never found in retention. Sections have been made at corresponding ages of descended and undescended testicles and the histological study of these sections reveals both a lack of development and a faulty development in the latter. This aberration is most marked at puberty when normally rapid growth takes place, but it is discernable in specimens obtained at a much earlier age. It is claimed that this fault is not due altogether to the unusual traumatism that an undescended testicle is subject to, but is inherent in the faulty position. This statement if true should have due consideration in determining when to operate.

The function of the testicle is two-fold:

First, it determines for the male the perpetuation of the species.

Second, it determines for the individual the development of the distinctive male characteristics and exercises a conservative influence upon at least some of these characteristics. The first function

is directly dependent upon the normal and full development of the organ.

If we turn to a text-book upon histology we note that certain changes take place in the epithelial elements of the seminiferous tubes during boyhood and that at puberty these changes are immensely stimulated and the production of normal active spermatozoa results. Just now we found that the normal development of the testicle does not take place if the organ remains undescended—indeed, not only does normal development not proceed in the usual manner, but distinct pathological changes occur. These alterations are most evident at puberty. It is claimed that normal spermatozoa have never been found in an undescended testicle, and while it is probably going too far to assert that normal spermatozoa are *never* present in these organs, still when present they must be exceptional. We are all familiar with the fact that occasionally a cryptorchid will marry and raise a family.

A very important point to keep in mind is the fact that the second or individualistic function of the testicle is not dependent upon its ability to produce the normal male elements. It is undoubtedly true that the general male characteristics of the individual will become fully developed even in the total absence of spermatozoa from the genital apparatus, and this whether the testicle be descended or undescended.

Another point worth remembering is that the masculine determinative function of the testicle very probably does not extend much beyond puberty, but produces its full effects early and then ceases. If the male child is in possession of the testicle up to the time of puberty and is then castrated, the male characteristics of form, voice, mental attitude, etc., will remain. On the other hand, however, it is well known that castration during early childhood will inhibit masculine development. Such an individual has neither the desire nor the ability to copulate. In cryptorchids sexual desire and potency are present, but not the ability to procreate. The absence of the testicles from the scrotum has a decidedly depressing mental effect upon the individual, and such a person is very prone to become sexually neurasthenic.

In some of our text-books and journal articles the advice is given that castration is the operation of choice in adults should it be found that the retained organs can not be easily brought down into the scrotum. This advice does not take account of the above mentioned psychic effect, and to that extent at least is erroneous.

Should it be the desire of any of those present to go into this subject more deeply and in detail the matter will be found very clearly discussed in some of our recent text-books, and especially in a few of the journal articles that have appeared during the past decade. For this reason it does not seem worth while to take up our time further with this résumé.

The points so far brought out that are worth remembering are:

1. A testicle that remains permanently undescended is always an undeveloped testicle.
2. The lack of development appears to be pro-

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gressive from early life and becomes most marked at puberty.

3. To this lack of normal development must be added the pathological changes produced by traumatism and inflammation.

4. It is the spermatogenetic function that is affected by the developmental fault.

5. The masculine determinative function is present in spermatogenetically non-developed testes.

6. Double cryptorchids may be potent, but are practically always sterile.

7. The absence of the testes from the scrotum has a marked and unhappy psychic effect upon the individual.

If these points are borne in mind they will help to solve many of the questions that must arise as these patients come for advice and treatment.

With reference to treatment, one broad generalization may be made. If the testes are at all palpable every effort should be resorted to to bring them down to normal position. It is well to remember that quite frequently in new-born babes the organs are not yet fully descended, but that they are very prone to complete their descent if left alone for a few weeks. If by the end of two months they still are not in place, then active efforts should be resorted to in attempts to induce their descent. These efforts will naturally be along the line of manual manipulations. Hernia may be associated with this condition, but the wearing of a truss can not be recommended, as it tends to prevent the further descent of the testicle and also may bring into play a traumatic element.

Manipulation failing operative measures must be considered. When is the best time to operate? Recalling what has been said regarding arrest of development, we will naturally advise an early operation. Most surgeons recommend waiting until from eight years of age up to just before puberty, but if the organ can be replaced at three or four years, it is undoubtedly best for the patient. This gives a better opportunity for full development of the spermatogenetic function, and furthermore it also tends to save the organ from repeated trauma.

Suppose the retention is abdominal and the testes can not be felt, should any operation be attempted? No, for the reason that in all probability it will be impossible to bring them down even after most careful freeing of their attachments.

It may be claimed that under these circumstances they could be ablated and thus avoid the possibility of later malignant changes. If emasculation were done early before puberty, then the development of the secondary male characteristics would be interfered with, which would certainly be objectionable. After puberty the emasculation would not matter so much, for the secondary characteristics already have been established; but at this time of life there could be no valid reason for operating except in the hope of bringing to the patient that peace of mind that can only be obtained if the scrotum contains its normal content. This might be a sufficient reason for attempting orchidopexy in a given case, but its applicability must find a very limited field of usefulness.

It has been my fortune to have seen several cryptorchids, and upon two of them I operated. Both of these were adults. In the first the retention on one side was abdominal and on the other side inguinal, while in the second both organs could be felt within the inguinal canal.

Case 1. Mr. X.—Age 24. Consulted me in 1907. Build rather slight but muscular and in good general health. Much worried because he was not as other men in appearance, and fearful lest impotence should come on and become permanent. He was subject to periods of marked psychic depression, from which he found it very difficult to arouse himself, and his physician also testified to the increasing despondency of the patient.

Examination showed the penis normal. Prostate normal. Scrotum empty. On the left side in the inguinal canal, the small testicle could be palpated. On the right no testicle could be found. Operation of left orchidopexy was advised. The usual operation was performed and after freeing all adhesions it was found that the testicle could be dropped into its bed in the scrotum. It was fixed in this position by a retention suture through the lower pole of the testicle and the suture was then brought out and attached to the thigh by an adhesive strip. The patient made an uneventful recovery. The testicle was small and undeveloped. Several months after the operation the organ had returned to the upper limit of the scrotum and has remained in this position to date. It has not increased in size, but it is in a position in which it can be easily palpated, and this seems to have a reassuring effect upon the patient. For moral reasons this man has never attempted intercourse, but a few months ago he consulted me regarding the advisability of matrimony and I expect sooner or later to have a report upon his sexual potency. He certainly is sterile.

Case 2.—Consulted me November, 1912. Age 26. His genital history was as follows: Neither testicle had ever been in the scrotum. At age of sixteen he had inflammation in both inguinal regions which put him to bed. Later he had severe pain and swelling on the right side. The swelling and pain gradually subsided. On the left side he has had repeated attacks of less severe pain and swelling.

At age of eighteen and for two years thereafter was sexually vigorous, but since that time has had poor erections and has been sexually incompetent.

Upon examination no testicle could be felt upon the left side, either in the scrotum or in the canal. However, the patient stated that when his attacks of pain would be felt upon this side a small tumor would develop near the internal ring, which was very painful, until by manipulation it could be made to disappear within the abdomen, when the pain would pass away. On the right side a small mass could be felt in the inguinal canal.

Operation—The right inguinal canal was operated as in a herniotomy and the testicle was found. It proved to be so far degenerated as to be not worth saving and ablation was performed. The wound was then closed.

The left inguinal canal was then freely opened and the left testicle was found lying in the canal, but it could be easily dislodged into the abdomen, where it undoubtedly made its abode for the greater part of the time. It was freed of its adhesions, the spermatic vessels were cleared well up into the abdomen, and were then found to be sufficiently lax. The vas was then freed well down toward the vesicle. This gave considerable additional mobility but not sufficient to permit the testicle to reach the scrotum. The floor of the inguinal canal was then divided and the vas brought out directly through the external ring. This

maneuver enabled the testicle to lie easily in its scrotal bed. The abdominal wound was firmly closed down to the external ring and the cord was attached to the pillars of the ring in order to prevent retraction. The testicle itself was attached to the scrotal bed but not to the thigh. The recovery after operation was prompt and satisfactory. It is now five months since the operation and I have had the opportunity of seeing this man several times. The testicle has retracted to the upper limit of the scrotum, but seems content to remain in this position. It seems fairly well formed and is movable. The patient has gained weight and is cheerful. His sexual potency has returned in a marked degree and as he has no moral scruples against illicit indulgence he seems determined to make up for lost time in this regard. On several occasions he has brought me the sexual discharge in a condom and two or three times I have massaged his prostate and adnexa and have carefully searched all specimens for spermatozoa, but have never been able to find them.

I wish to mention but one point more. In operating it has been advised and generally practiced, to freely divide the spermatic vessels if they offer resistance to descent. The operation for varicocele teaches us that the vessels can be divided with impunity without sacrificing the organ, but in my judgment in the operation of orchidopexy, and especially if the operation is done early, every effort should be made to preserve all the circulation possible in order that the testicle may have a most abundant blood supply. Thus its normal growth will be fostered and a better developed testicle obtained.

INTENSIVE STRYCHNIN TREATMENT OF TRIFACIAL NEURALGIA.*

By THOS. J. ORBISON, M. D., Los Angeles.

INTRODUCTION.

It is a difficult matter to discuss any single type of nerve involvement without confusing the subject with the other types of involvement of that nerve, especially if the discussion involves a symptom complex of a nerve tract of such importance and extent as the fifth cranial or trigeminal nerve, being as it is the most important sensory nerve of the head. The subject of this paper is that one phase of trigeminal disease known as trifacial neuralgia.

The difficulty, therefore, is to avoid mistreating the subject in hand by allowing the whole subject of headaches in general to crowd out one of its smaller divisions.

I shall risk such danger by contrasting here the treatment of a few of the other types of trigeminal pain with that of true neuralgia of the trigeminus.

This is done advisedly and for the purpose of emphasizing two things: (a) that neuralgia of the fifth nerve may be treated along more or less routine lines, or specifically, so to say; whereas, (b) the other types must be treated individually and by methods differing in kind.

This paper contains the clinical records of five cases of trifacial neuralgia (one case being multiple

neuritis plus trifacial neuralgia) in which the treatment consisted of strychnin exhibited in large or massive doses. The happy results and freedom from untoward complications recommend themselves to consideration. All of these cases contain a record of infection. This seems to the author to be the important indication for the exhibition of strychnin.

In contrast to these, and for the purpose of calling attention to the fact that strychnin is not held to be a specific in every painful condition of trifacial distribution, the author desires to cite five cases as examples of other and separate types of trifacial nerve pain in which rational therapeutics seemed to indicate different and differing methods of treatment, and in which the results have been likewise happy.

Of the latter five, one was of hyperemic headache secondary to ovarian dyscrasia and cured by appropriate surgical measures and organo-therapy; the second was a typical indurative headache that was speedily cured by the application of correct massage and moist heat to the infurations, together with internal administration of salophen and the iodides; the third was a combination of migraine with psychasthenia that was cured by the "training camp" method; the fourth, an incipient arteriosclerosis and fatigue neurosis, in which rest, hydropathy and thyroid extract were the curative measures; the fifth is a typical migraine associated with an unsuspected syphilis in which salvarsan is being exhibited because the presence of the latter was demonstrated by a positive Wassermann of the spinal fluid. This case is still under observation.

Record of Cases of True Trifacial Neuralgia.

Case I. Ref. by Dr. W. A. Edwards. R. G., N. Y. Aet. 52 years. M. Business man. Diagnosis: Supraorbital Neuralgia. F. H. Negative.

P. H. In robust health up to 20 years. Drank too much from twentieth to fortieth year. Grip at twenty-five years (he was sick in bed six weeks and lost forty pounds). After it, he developed psychasthenia and neurasthenia. Malaria at forty years. With this there was a nephritis. Six years ago, a diagnosis by competent physicians was gastritis, colitis and intestinal dyspepsia.

P. I. Seen first 12/16/12. Suffers with intense supra-orbital neuralgia. Morphua, aspirin, veronal and other drugs have no effect upon it.

Treatment: Confined to his room. Strychnin sulphate, gr. 1/30 hourly for four hours, a. m. and p. m., by mouth.

The day following, he was free from the severe pain. On the second day there was no pain. After that, for seven days more, he continued the treatment. Since then there has been no return of the neuralgia.

Case II. H. H. M. Aet. 72 years. M. No occupation. F. H. Negative.

P. H. During the Civil War, he was shot in the leg and developed sepsis. For a long time his life was in danger. He has had malaria and grip. His general health has been rugged. For many years he has had many attacks of intense trifacial neuralgia. These have had no periodicity. Most often the supra-orbital branch of the trifacial supplied the painful zone.

P. I. Seen June, 1912. He was in bed with his head wrapped in hot compresses, and in evident, intense pain. He said he had been suffering for three or four days.

Treatment: Strychnin gr. 1/40 hourly hypodermically for four hours a. m. and p. m. This was

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increased to gr. 1/20 on the third day. By the fourth day he was free from pain and remained so for six months. There was at that time a return of his usual pain. I saw him in this attack and began the strychnin on the seventh day of it. While under the effect of the drug his pain was controlled. It would recur daily, but with less severity. But by the end of ten days it had practically disappeared (more than one branch of the fifth involved). Three months have elapsed since his last attack.

Case III. Miss M. A. Aet. 32. Teacher. F. H. Negative.

P. H. She has been delicate from birth. Pneumonia at three months, followed by bronchial catarrh and dyspepsia, laid the foundation of a delicate childhood. Typhoid fever at eleven years was followed by trophic and sensory nerve disorders—her hair became stiff and fell out; she suffered with pains in the hip joints and sacro-iliac articulations; still later with leg pains.

She has had three attacks that were grip-like in character. Seven years ago she suffered with a skin disease that was associated with alimentary tract distress.

During the last few years she has been, for her, quite well. An interesting condition, in the light of her present complaint, was a tooth impaction (on both sides), with its severe, grinding pain in the left lower jaw for which a correction operation was performed five years ago. Two years ago there was a muco-purulent discharge from the post naso-pharynx.

P. I. She has had no headache in the last five years, until July, 1912, when she began to suffer with a grinding pain in the left upper jaw (similar to the pain of five years ago). This pain was localized in the left zygomatic region, and has always begun there ever since. Thence it will radiate to the eye, ear and lower jaw. It is a dull, heavy, grinding pain rather than a sharp, shooting pain. It has never been present in the daytime, except one day.

There have been three distinct attacks previous to the present: the first in July and August, the second in October and the third in November about a week previous to the present attack. All were associated, as to time, with the menstrual period (except the present). The first lasted ten days, the second eight days, and the third four days. The present attack began last night (November 22nd, 1912).

Treatment in this case promised to be unsatisfactory, because it was not expedient for this young woman to give up her school duties completely. But, because of her hearty co-operation, we were enabled to obtain excellent results in a reasonable time. She went directly home from school and to bed. She then took strychnin, gr. 1/40, hourly, by mouth, while awake. On Saturdays and Sundays and holidays this treatment was continued.

The result has been more satisfactory than was anticipated. The trifacial pain was at first controlled and then entirely disappeared.

Case IV. 5/2/12. Ref. by Dr. Soiland, of Los Angeles. E. E. B. Aet. 52 years. S. Solicitor. Diagnosis: Tic Douloureaux. F. H. Negative.

P. H. Has always been in robust health, except that he was treated so vigorously for a suspected syphilis that he developed mercurial poisoning. This happened in 1886.

P. I. Five years ago he had a painful spasm of the left side of his face. Electrical treatment, he said, relieved it. Three years ago there was a return of pain with spasm of the facial muscles on the left side. The pain was confined to the inferior maxillary distribution and has remained so. Ten months ago the pain again returned and has continued more or less constantly. Examination shows it to be a typical tic douloureaux. During the pain,

if any attempt is made to open the jaws the pain is excruciating.

The teeth have been examined for any possible etiology. The exhibition of morphin hypodermically gives no relief. Treatment by the alcohol injection method seemed to be indicated. A preliminary course of rest in bed, oil ricine 5i a. m. and p. m., with strychnin sulphate, hypodermically, was instituted. Strychnin was exhibited in gr. 1/40, hourly doses, at first, for four hours in the morning and again a course of four hours in the afternoon. The dosage was rapidly increased until he was getting gr. 1/10 hourly, day and night, hypodermically. This was continued for ten days without untoward symptoms. Only once was the dose diminished for a few hours, because of slight muscular twitching.

The remarkable feature about this case was the unmistakable control of the pains in the face. But, inasmuch as it did not entirely arrest it, the injection of alcohol was made at a formal operation performed by Dr. A. S. Lobingier. The mandibular branch of the fifth cranial nerve was exposed by a window cut out of the lower jaw and injected with 70% alcohol, minims twenty. The seventh nerve was exposed at the same time and likewise injected. The results were instant arrest of the pain and facial spasm, with a temporary facial paresis. The latter cleared up completely and the pain did not return for nearly six months, and then only as an occasional symptom. At the present time, more than a year since the operation, he is having no pain or spasm.

Case V. Ref. by Dr. F. M. Pottenger. Mr. A. R. M. Aet. 61 years. M. Diagnosis: Polyneuritis, with trifacial neuralgia. F. H. No hereditary taint. Was married at 21 years. Patient has had nine children; two were still-born.

P. H. He denies venereal disease. At forty years of age he had typhoid and malaria. Since then he has never been as well as before.

P. I. For the last fifteen years, or longer, he has complained of pain in all parts of the body and head. It began in the little toe of the left foot. Then the upper leg on the same side. Later the other toe and leg were involved.

About this time, he had subjective girdle sensations. Still later the lumbar region, thorax and head have been implicated. At first, he had the so-called "felt foot" symptoms. There have never been gastric crises. There have at times been temporary blurred vision and some faintness.

The diagnosis of tabes was made by a number of prominent neurologists and internists in Chicago some years ago.

P. E. Examination of the blood and spinal fluid showed a strongly negative Wassermann (Brem & Zeiler).

Examination of the eyes showed normal fundi with reaction to light and in accommodation (no Argyle-Robertson pupils) (Dr. Mansur).

Reflexes. K. J. absent; B. J. present; no Babinski; station intact. Blood pressure 170 M. M. No objective disturbance of sensation.

Urine: Normal except for increase of indican. There is evident intestinal stasis.

Treatment: He was put to bed and his bowels kept active. Strychnin sulphate, gr. 1/40 hourly, for four hours, a. m. and p. m. exhibited. This was increased to gr. 1/20 and gr. 1/15 alternately. Quinine, gr. v, hourly, for three hours, was given by mouth at six, seven and eight o'clock p. m.

Previous to beginning this course, he had been taking morphine, gr. 1/4 every day or two for some time. Since beginning it, he has had only three hypodermics of morphine, gr. 3/16. The whole character of his disease has thus changed within two weeks. What the future holds for him remains to be seen.

The treatment of trifacial neuralgia by intensive strychnin dosage is not new. Dercum of Philadel-

phia, Dana of New York, and others have advocated its use. The former encouraged the author to use it freely in suitable cases and under the right conditions, which is that of rest, preferably in bed, and with due regard to intestinal activity. This has been combined with quinin by the author in selected cases with good results.

The recent literature contains but meagre data concerning its manifest uses in trifacial neuralgia. Therefore it seems advisable to call attention to it at this time. Also, it seemed wise, in the beginning of this paper, to emphasize the fact that all cases of headache or trifacial irritation are not to be treated by any routine method; and that in selected cases (viz: true trifacial neuralgia) is strychnin in intensive dosage a rational therapeutic agent.

PELLAGRA.

By ANSTRUTHER DAVIDSON, M. D., Los Angeles.

I do not intend to enter into any discussion of the theories of causation, pathology or prevalence of Pellagra. These things have been already discussed and recorded in our journals and text books, by abler men of much experience. I wish but to record this case and add a mite of information on the probable causes we meet in California.

M. G., a carpenter, aged 74, complained of diarrhea of five or six years' duration, sometimes not very troublesome but always in some degree present. For the last few months the bowels moved four or five times a day and once or twice at night, the consequent weakness was his only complaint. Last year his hands, he said, "cracked, scaled and bled," once in the spring and again in the autumn. This year they had already scaled once (July, 1912). His hands presented a dark reddish appearance with a slightly raised well defined cuff border, the back of the fingers to the first phalanx was scaling in large plaques. The center of the dorsum showed paler, semicircular tissue, as if the scaling had been deeper in that locality. Knee reflex exaggerated, but no other symptoms referable to the nervous system, except marked irritability of temper. I prescribed for his diarrhea and saw him twice in the next ten days. As he did not appear the following week it was found, on inquiry, he had become suddenly much worse and died. He was born in the East but had lived in Los Angeles for about ten years. Unmarried, he lived alone, cooking his own meals, of which cornmeal mush was a daily feature. This case is undoubtedly one of pellagra and one of the comparatively few discovered in Southern California.

This disease has now been found in nearly all the states of the Union and in most European countries. The cause of pellagra has been attributed to the eating of diseased maize and lately by Sambon to infection by a *Simulium*.

As the disease in many respects resembles a toxic erythema in its appearance, it is not at all improbable that it is a cutaneous reaction from either a special food, or some special metabolic disturbance that is associated with some toxemia. This man, as we see, ate largely of corn, and corn even when not diseased, if much used, is prone to cause cutaneous irritation. The popular idea that corn is heating to the skin is correct, as its use in sufferers from urticaria and acne is prone to increase the inflammatory appearance. Oatmeal has the same tendency. Corn is not much used in the dietary of the people of California and if the cause of pellagra lies therein we may not expect many in this state. If the *Simulidae* are the source of infection we are well supplied

with probable sources. California has at least six species of the genus, viz:

- S. meridionale*, Riley. Fresno.
- S. venustum*, Say. Fresno.
- S. braeateum*, Coq. Los Angeles Co.
- S. pictipes*, Hagen. Los Angeles Co.
- S. vittatum*, Zett. Los Angeles Co.
- S. virgatum*, Coq. Los Angeles Co.

I have no acquaintance with the northern part of the state, but I presume the species are even more abundant there than in the south, as the conditions as regards moisture are more favorable to the propagation of the insects.

The most common species here, *S. braeateum*, is a small dark fly popularly classed among the gnats as it bites somewhat severely. It is to be found around horses in all the mountain camps or near streams up to 8000 feet altitude in Southern California. They suck the blood from the flanks and inside of the ears of horses and donkeys. The latter especially suffer. Towards the end of the summer the inside of the ears are thickly spotted with blood-stained crusts where the insects have repeatedly fed. If all the *Simulidae* are capable of transmitting pellagra the disease ought to be fairly common, but in this genus, as in the *Culicidae*, it may be that only certain species are capable of conveying the infection. *Simulium reptans*, the species that Sambon seems to think is the communicator of pellagra, has not been found in California so far as I know. Much work must be undertaken before the true cause can be discovered, and it is possible that the *Simulidae* may be but the intermediate host in conveying the infection from horse or donkey to man.

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ORTHOPEDIC TREATMENT OF SPINAL POLIOMYELITIS.

By JAMES T. WATKINS, M. D., San Francisco.

The present paper was delivered in abstract before the California State Medical Society at Del Monte in April, 1912. The time limit set made it necessary to confine its scope to a consideration only of the principles governing the operative side of treatment. Here in the full text other, and if anything more important features of treatment are also given consideration. Occasional repetitions appear in the text where facts were deemed sufficiently important to warrant reiteration.

(Continued from Page 377, September Journal, 1913.)

"1. Do you consider tendon transplantation in properly selected cases a useful and satisfactory operation?"

"The replies were as follows: (40 answers.)

Yes	34
Yes, qualified	2
Moderate	3
In some	1

"The opinion is thus definitely expressed that it is a satisfactory and useful operation in suitably selected cases.

"2. Are your end results satisfactory?"

"The replies were as follows: (42 answers.)

Yes	13
Yes (in carefully selected cases).....	7
Moderately	7
No	7
Sometimes relatively or partially	8

"3. Do you prefer tendon-to-tendon suture or periosteal implantation?"

"The replies were as follows: (38 replies.)

Periosteal implantation	28
Both methods used	5
Tendon-to-tendon suture	5

"4. What, in your experience, are the most frequent causes of failure to obtain good results?"

"(As most circulars contained several heads to this reply the total is in excess of the number replying.) (70 answers.)

Improper selection of poor operative plan	20
Insufficient after-care	17
Failure to overcorrect deformity.....	7
Infection	7
Insufficient tension	7
Poor technic	3
Substitution of weak muscles.....	2
Operation on too young children.....	3
Tendons too short or too poor attachment	3
Stretching of tendon, tendon too freely stripped, use of catgut, failure to tunnel properly, pull not straight.....	1 each

"5. Are your more recent operations more satisfactory than your earlier ones were?" (37 answers.)

Yes	31
No	5
The same	1

"From comments made in the replies it seems that this improvement is due to two causes: first, the more careful selection of cases, leading to fewer operations; and, second, improved operative technic and better after-treatment.

"Causes of Failure—The three common causes of failure after tendon transfer may then be formulated as follows, named in the order of their frequency:

"1. Selection of unsuitable cases for operation and insufficient study and analysis beforehand to permit a proper operative plan.

"2. Insufficient or improper after-treatment.

"3. Failure to over-correct deformity before operation for tendon transfer."

Finally, on the nineteenth day of August, of the present year, Lange, in a personal letter, writes me of his method: "During the past ten years—since you were with me—I have learned much additional, and my satisfaction with the results has increased from year to year." With this letter, Lange sent me his latest publications, the last of which appeared in April of this year.

I place this evidence before you to show you that the value of the operation, or group of operations, the principles and technic of which I shall presently detail to you, is no longer a subject for theoretical speculation. They have been tried by many men in many parts of the world. Those men who were specialists in orthopedic surgery have, in an overwhelming majority of instances,

succeeded in relieving their patients by this method and where they have failed, have recorded the same criticism of the causes of failure. They were mistakes of judgment, mistakes of technic, they were *not* mistakes of the principles involved.

As you know, walking over uneven surfaces necessitates four essential motions of the foot on the leg: up and down motions and motions from side to side. Two or more muscles participate in each of these motions, and each muscle has at least two actions. For example, the extensor of the great toe is also a dorsal flexor and supinator of the foot upon the leg.

The operative treatment of defects consequent upon infantile paralysis presents three phases: first, overcorrection of whatever deformity may be present; second, re-adjustment of the muscular balance; third (this being consequent upon the others though not strictly operative), education of transposed muscles to do the new work required of them.

With the first phase of operative treatment I shall not detain you. We stretch or cut fasciae, tendons, muscles, and ligaments which oppose our reversing the distortion present and overcorrecting it. For example: if the foot is in a posture of equino-varus—what we ordinarily call the "club-foot position"—it should be remodeled into the reverse position of calcaneo-valgus, that is of extreme flatfoot.

Occasionally osteoplastic or bone-cutting operations have to be done. They are, however, to be deprecated.

As has already been said, the method of Lange aims to free the tendon of a healthy muscle from its bony attachment and to re-insert it at that point on the skeleton of the foot where it will best do the work that had been done by the paralyzed muscle prior to the infection. It is not at all essential, however, that the transplanted tendon should have the same insertion as the paralyzed one. For example: no muscle inserts into the upper surface of the cuboid bone: but in those cases where there has occurred a paralysis of the peroneus tertius, or of the long extensor of the toes, or of both, with subsequent dropping of the outer side and front of the foot, the cuboid is the point of selection for the insertion of the muscle to be substituted for the paralyzed one.

In selecting a muscle to replace one that has become paralyzed we look for that one which is anatomically and functionally nearest to the injured muscle. For example, where there is a paralysis of the tibialis anticus, if the extensor of the great toe is found to be healthy, we transfer its insertion to the site of the insertion of the tibialis anticus.

To make the four motions of the foot on the leg, five points on the foot must be provided with active muscles; and these muscles must be able to contract independently of one another. After infantile paralysis, it is usually necessary to sacrifice less important actions, such as those of the toes, in order to obtain enough muscles to supply to these five points. The up and down motions, dorsal and plantar flexion, are more important than the side to side motions. To make the former, a muscle

capable of independent contraction must be attached behind the leg to the site of the insertion of the calf group into the heel, and one each to the outer and to the inner side of the dorsum of the foot in front of the leg.

For adduction, or turning the forefoot inward, a fourth muscle must follow a course approximating that of the *tibialis posticus*. Like the latter, it must insert at the inner side of the foot, preferably into the internal cuneiform bone. Abduction, or turning outward of the fore-foot, can best be obtained by attaching an independent muscle to the base of the fifth metatarsal bone or its vicinity; a muscle whose course corresponds with that of the *proneus brevis*.

While it is greatly to be desired that the transferred muscle be anatomically and functionally related to the muscle it is required to replace, in many instances, especially where the disease has caused extensive paralyses, this cannot be accomplished. The transferred muscle must then be brought from a distance. Frequently the tendon of such a muscle is too short to reach the desired insertion. In such a case we are constrained to make up the deficit by prolonging the tendon with silk. Without the frequent and assured use of these *silk tendons*, the successful treatment, by the new method, of deformities consequent upon poliomyelitis must have been limited to a relatively small group of cases. I feel it incumbent upon me therefore to describe these silk tendons more in detail.

It has been the experience of countless surgeons that freshly boiled silk heals kindly within the tissues. It has also been the misfortune of many of us to see silk, which had long been healed in, become the seat of a localized infection; an infection which ceased only with the removal of the silk. To prevent this late infection of silk which had been healed in, Kocher advised a preliminary boiling of the silk in corrosive sublimate. This maneuver successfully combats the possibility of late infection, but has one inherent disadvantage. Bichloride of mercury is such an irritant to the tissues that it can set up a reaction so severe as occasionally to call for the maintenance for some time of post-operative wound drainage. This, of course, opens up a possible path for the ingress of bacteria. To obviate this drawback I boil the bichloride silk in paraffin. This prevents immediate contact between the sublimate and the lately injured tissues.

To do this I proceed as follows: Various sizes of silk, cut in one meter lengths, are loosely rolled upon gauze sponges. They are then boiled for half an hour in corrosive sublimate, 1 to 1000. They are next wrapped in a sterile towel and dried on the radiator for forty-eight hours. If any moisture remains in the silk the preparation will be a failure. Paraffin, with a melting point of 120 F. is next dissolved in a vessel on the hot-water-bath and the dry sterile bichloride silk boiled in it for one hour. Without removing the silk, a cover is put on the paraffin jar. In this way the silk is kept sterile and hermetically sealed until it is needed: at the time of the operation the paraffin is again dissolved on the water bath. The silk can

then be withdrawn by means of a long sterile forceps from the containing jar in desired sizes and amounts. In this way I obtain a silk which is at once antiseptic and bland to the tissues. Whatever silk comes out of the jar stays out. That was my reason for cutting it in meter lengths. It assures the maintenance of the asepsis of my paraffin. The method has the one drawback that as a result of the boiling in sublimate the silk loses approximately one-third of its tensile strength.

To attach the silk to the tendon I employ the procedure advocated by Lange. In order that the tendon may not be split, the silk is threaded upon a round needle. Holding the tendon tense, the needle, threaded either single or double, is carried in a basting stitch, which does not wholly pierce the tendon and its sheath, up one side for an inch or more, then across and down the other side and out again. This leaves the tendon which is to be transferred with either two or four silk strands emerging from it at a point opposite to where it is to be severed. The tendon is now cut across and the distal stump attached ascendingly by a similar stitch to the tendon of the nearest healthy muscle. The proximal stump or its silk prolongation, is carried subcutaneously over to be attached to that bony point where it will be most advantageously placed for the performance of the function of its paralyzed neighbor.

It is the endeavor of most operators to bring the fleshy and tendinous portions of the transferred muscle into one and the same straight line. If, in so doing, it cannot be brought to exert the same pull as the muscle it was meant to replace, this is regarded as one of the limitations of the operation. Under this plan of action, if, for example, a *peroneus brevis* has to be employed to replace a paralyzed *tibialis anticus*, in a case of paralytic equino valgus, it is carried obliquely forward and downward across the front of leg and dorsum of foot to insert into scaphoid. Such a transferred muscle will correct the equinus or drop-foot but still pull the foot over into valgus. I, at one time, was accustomed to make the mistake of compelling muscle belly and tendon to lie in as nearly straight a line as possible regardless of other considerations. It was based upon a misconception of the mechanics of muscle action. As a matter of fact, as Fischer has conclusively shown, if a muscle is caused by bony projections or by ligaments to deviate from a straight course, its function is always determined by the direction and course of that portion of it which stretches unhindered from one point to another. That is, in the example just employed, the belly of the *proneus brevis* can be carried at an angle across the front of the leg, and so long as its tendinous portion follows the course of the tendinous portion of the *tibialis anticus*, it will perform the function of that muscle.

While we need not hesitate to so place the upper portion of the transferred muscle as to enable the lower or tendinous portion to follow the course of the paralyzed tendon, the manner of making the canal in which it must lie is of prime importance.

Adhesions during the post operative six weeks fixation period are unavoidable. Therefore, if the muscle belly is going to be able to contract it is necessary that these adhesions should be to soft movable tissue. Wherever a muscle lies directly on a bone or a dense fascia, and adhesions have taken place between them, that muscle can no longer contract in response to nervous stimulus. Therefore, in tunneling a canal for the new location of the muscle belly, the greatest care should be exercised to keep close under the skin in the subcutaneous fat and areolar tissue. I think that the failure to recognize the importance of this feature of the technic explains no small proportion of the poor results hinted at by some of our colleagues.

Of very great importance is the manner of the attachment of the tendon, or its silk prolongation, to the periosteum, i. e., the new insertion. You will recall, that, in basting the tendon with silk, a round needle was used so as not to split the tendon. The silk is now threaded on a very strong curved needle, with three cutting edges. Using all the force possible without breaking it, the needle is forced through the periosteum at the desired point for the insertion of the transplanted tendon, and, if possible, through the superficial layers of cartilage. Two such basting stitches are sufficient for each silk thread. The foot is then held in maximum overcorrection while the silk threads are drawn tight enough to cause a moderate degree of tension in this position. They are then tied and the knot squeezed flat to prevent its forming a decubitus later. Lovett places his knots beneath the periosteum.

The paralyzed tendon is next shortened. If this does nothing else it will, for a time, relieve the new tendon of part of the strain thrown upon it. It should have been said earlier that skin incisions must be free and so placed as not to lie over the silk tendon, nor its insertion, but sufficiently removed to one side of it, so that with the closure of the wound, the silk will be completely covered in.

The wounds are closed with horse hair and silk-worm gut, the stitches painted with iodine, and a flat pad of sterile gauze applied. Sterile cotton wadding and plaster of paris complete the operation. From the moment that the ends of the silk tendons are drawn tight and tied after they have emerged from the periosteum, till the plaster of paris has hardened, an assistant holds the foot in a position of extreme overcorrection. This relaxes the tension on the new tendon, while it is healing in.

After-Treatment: It would be an error, fatal to the successful outcome of the case, to assume that treatment ceased with the healing of the operation wound. A large part of the partial or negative results obtained by some operators must be attributed to a failure to recognize this fact. The writer's procedure is as follows: During the first few days the toes are watched for evidences of vascular disturbances. Some time after the fourteenth day the plaster dressing is removed,

stitches taken out and a plaster of paris negative of the limb taken to be used in making the apparatus to be worn later. The limb is then put back into plaster of paris in the over-corrected position.

About the end of the sixth week, the splint is removed and the patient exercised several times daily in the use of his muscles in their new relations. He is, however, *not allowed out of bed. Under no pretext, with or without splints or braces, is the weight of the body permitted to be borne by feet which have been subjected to operation before the end of the twelfth week.* The writer is in entire agreement with Lange when he says:

"The first two months *after* the removal of the plaster of paris are *much* more critical than the interval during which plaster of paris is worn."

The reason for this is that only after the removal of the cast does true tendon tissue, or, as is more probably the case, scar tissue, under the influence of functional use, begin to surround and embed the silk implantations. At the same time the transposed muscle begins to acquire the strength necessary to the prevention of a relapse. The technic of the exercise treatment, which again finds its application here, has already been described.

For at least *a year* after the removal of the cast protective apparatus must be worn during the day and in some cases at night as well.

I have been asked when is the best time to operate. The reply is one year after the inauguration and systematic protraction of careful, thorough, conservative treatment. As regards the best age to operate: my oldest patient was forty-four years old. On the other hand I do not care to operate upon children who are younger than four years. Their tendons are too delicate and frail.

I cannot close this paper without discussing at some length an operative procedure which occupies an important place in the surgery of poliomyelitis. I refer to the arthrodesis of Albert. An arthrodesis is really a conservative resection of the contiguous ends of bones which make a joint. Its purpose is to destroy motion in a joint by creating an artificial ankylosis. In the group of cases under consideration it finds its greatest usefulness in the treatment of flail joints. The latter occur, when, as the result of a severe invasion, all or nearly all, the muscles about a joint are permanently paralyzed.

Motion which cannot be controlled is certain to lead to the development of a deformity. Therefore it must be limited by check ligaments of silk or got rid of by arthrodesis. In the writer's judgment the silk ligaments are to be preferred for children less than ten years of age. Later than this arthrodesis is the operation of selection.

In an attempt to determine the estimation in which arthrodesis was held by the profession, or rather by those members of it best fitted to form an opinion, Mr. Robert Jones propounded to them a series of eight searching questions. Eighty surgeons replied in detail.

It is deemed worth while to epitomize Mr. Jones' report.

1. "Will you state your opinion of the value of arthrodesis?"

Sixty-seven of the eighty surgeons were in favor of the operation, a considerable number of them holding, however, that it was of special value in selected cases.

2. "At what age is it best the operation should be performed?"

Only fifty-one of the eighty answers received were capable of classification. Of these fifty-one, however, forty-five do not operate under five years of age, and only six do. In other words seven and a half times as many operators preferred to wait till after the fifth year as those who should operate at an earlier date. There was a further majority of two to one who favored deferring the operation till after the eighth year.

3. "Do you take any special precautions to bring about bony union?"

Answers to this question in the proportion of their frequency were:

1. Thorough and careful removal of the cartilage. 2. Good coaptation of the bony surfaces. 3. Long immobilization. 4. Artificial adjuncts: screws, pegs, nails, etc. 5. Chemical adjuncts: phenol, tincture iodine. 6. Special technic.

4. "What joints are most favorable for operation?"

Ankle, 39.

Shoulder, 4.

Mediotarsal, 2.

Sub astragaloid, 1.

Knee, 25.

Hip, 2.

Elbow, 1.

Answer vague, 6.

It is manifest, then, that the large majority favor the ankle with knee second and the rest hardly deserving of consideration.

5. "Is the operation useful in combination with tendon transplantation and teno-plasty?"

Forty-seven surgeons replied in the affirmative. There was not enough unanimity in the other replies received to make deductions from them possible.

6. "Have you met with deformity connected with irregular growth as an ultimate result of the operation?"

Seventeen surgeons replied in the affirmative and attributed their imperfect results to the operation being performed at too early an age, or to bad technic or to the fact that the joint was not kept immobilized for a sufficiently long time.

7. "Have you experienced failures, and if so can you tell why?"

Failures are reported by fifty surgeons and attributed variously to nine causes.

1. Operation performed at too early an age.

2. Cartilage not thoroughly removed.

3. Insufficient immobilization.

4. Lack of vitality, especially in paralyzed limbs.

5. Stretching of fibrous unions.

6. Faulty technic.

7. Rotation of sub-astragaloid joint in case of operations on the ankle.

8. Omission of chemical irritants.

9. Parental neglect.

8. "Can you offer any suggestions in technic

whereby operative procedures may be improved?"

The replies to this question were too numerous and diverse to merit repetition here except in groups.

1. Special operations—of these there were four.

2. Incisions—these were very various.

3. Special technic—these were grouped under twelve heads during operations.

4. Special technic—considered under four headings after the operation.

"The value of tabulated answers to questions is lessened when we realize that some of the correspondents are men of wide experience of the operation, and others who have seldom performed it.

"Those surgeons of large experience speak with no uncertain approbation of its value, and the majority of those who refer to the two operations think arthrodesis of more assured service than teno-plasty or tendon transplantation. Surgeons who speak disapprovingly of the operation have usually operated on the very young or have given the procedure only a limited trial, or have been adversely influenced by early failures."

Of arthrodesis it may be said that the operation should not be performed before the eighth year and that from the tenth year on is the time of preference.

It should be performed only where all or almost all the muscles about a flail joint are paralyzed—that is, a joint on which a tendon transference can not be expected to succeed. It should be performed with the least possible sacrifice of bone. As applied to the lower limb it is expected to render a flail joint strong enough to bear body weight without artificial aids. From what has gone before it is evident that the ankle is the joint most suitable for arthrodesis; next to it comes the knee.

It is well to fix the transverse tarsal joint at the same time with the ankle joint.

Next to a proper age, complete removal of cartilage, good adaptation and long immobilization are requisite to firm union. And conversely, the principal causes of failure may be set down in their order of frequency as too early an age, incomplete removal of cartilage, poor apposition and too short fixation.

The type of case suitable for operation. In determining this it is necessary to bear in mind that paralysis of the nerve centers is not nearly so extreme in cases of infantile paralysis as the groups of muscles affected would lead one to suppose. According to Mr. Jones it is of the utmost importance that the ankle joint should not be fixed until we know "(a) That the paralysis is complete, and depends on the destruction and not on the temporary disorganization of motor cells.

"(b) That at least two years have elapsed in the case of muscles suspected to be completely paralyzed.

"(c) That apparently paralyzed but really over-stretched muscles have first been submitted to appropriate treatment."

CONCLUSIONS.

(a) The operation of arthrodesis is of the most value at the ankle.

(b) It should preferably not be performed in children under ten.

(c) The surgeon must satisfy himself before operation is advised that the muscles are hopelessly paralyzed.

(d) The preliminary preparation of the foot by wrench and tenotome must correct all deformity.

(e) The operation must be so planned that the bones be in correct apposition and the deformity is fully corrected.

(f) At the ankle wedges of bone should be taken from the astragalus, never from the tibia.

(g) At the elbow Mr. Jones prefers removing a large diamond-shaped piece of skin to arthrodesis.

(h) Splints should be applied and retained till union is pronounced to be complete. The joint should then be guarded by appliances till the surgeon is satisfied that it is strong enough to bear body weight without yielding.

As a substitute for arthrodesis Barton and Plummer have employed intra-articular silk ligaments, and report themselves to be much gratified with their results. These writers pass strong strands of paraffined silk through a tunnel made first in the end of one bone then through the joint, next through a tunnel in the end of the second bone, and back again through the joint to the point of starting. The ends of silk are then drawn taut and tied.

The reason for carrying the silk through the joint is to set up a copious exudate which, by organizing later, will help to limit the motion in that joint.

It seems probable that this operation, or rather operative principle, will in time find a definite though perhaps limited field of usefulness in the surgery of infantile paralysis.

Mr. Robert Jones has laid stress upon the fact that the central lesion in spinal poliomyelitis is by no means so extensive as the muscular disability would lead one to suppose. He has further emphasized that where paralysis of certain groups of muscles are associated with the persistence of a distortion which causes them to be overstretched, it is proper to maintain the foot for a long time in that posture of overcorrection which will most relax these muscles, in the hope that thereby they will be enabled to regain their ability to contract. To obtain this result, however, the overcorrection should be maintained for months perhaps without once permitting the limb to assume a posture which would again cause stretching of the affected muscles.

To make sure that the desired posture will be maintained, Mr. Jones excises a diamond-shaped fold of the loose skin over the overcorrected joint and, after shortening the tendons, sutures its edges together. When union has taken place, the changes of an immediate or momentary relaxation of the posture will be nil, and in a few months it will be definitely known whether or not the patient presents a muscular defect consequent upon a vicious posture or a central nervous lesion.

If the first should be true, massage and exercises, augmented perhaps by some form of tendon transference, are indicated; if the latter, one knows that when the age limits have been passed an arthrodesis will be needed.

A vast deal has been written of late years on the treatment of spinal poliomyelitis. In the preparation of this paper the writer has added to his own experience gleanings from some sixty-odd previous publications by men distinguished in this special field of endeavor. The most important of these papers he has specifically mentioned. Before closing he would like to bear witness to the benefit received from the repeated perusal of a paper entitled "A Case of Infantile Paralysis," by Professor and Mrs. Earl Barnes, late of Stanford University. A record of heroic achievement and of a deservedly great reward.

SOCIETY REPORT

CALIFORNIA ACADEMY OF MEDICINE.

On the evening of August 25th a meeting of the California Academy of Medicine was held, at which the following program was given:

1. Demonstration of an easily constructed case for the display of X-ray plates and lantern slides.

Report of a case of pneumonia, complicated by tympanitis; operation and recovery. T. C. McCleave.

2. A Case of Rhinoscleroma. H. E. Alderson. Bacteriologic findings in above case. E. C. Dickson. Discussed by L. S. Schmitt and L. S. Mace.

3. The Emergency Hospital at the Panama-Pacific Exposition. R. M. Woodward.

BOOK REVIEWS

Golden Rules of Gynecology. By George B. Norberg, M. D., Professor of Diseases of Women and Clinical Gynecology, University Medical College, Kansas City, Mo.; Gynecologist to Kansas City General Hospital, Fellow and Ex-President Kansas City Academy of Medicine. 250 pages, 8 vo. Price, \$2.25. C. V. Mosby Co., St. Louis.

Today the effort is to become proficient in whatever one does, that is, it is a day of specialty. So this small volume hurriedly going through an extensive subject in order to supply a "busy practitioner" with a short-cut to gynecology, finds less room on the book shelf today than it did formerly.

C. B. M.

Cardio-vascular Diseases. By Thomas E. Satterthwaite, A. B., M. D., LL. D., Sc. D. Lemski & Buechner, New York, 1913.

In this book the author presents a revised collection of monographs written since 1905 as successive addenda to his "Diseases of the Heart and Aorta," also published by him in medical journals. The newer work on the anatomy and physiology is detailed. Various instruments of precision employed in the study of cardiovascular diseases are described, with their practical application. Several chapters deal with the purely clinical side of cardiology, with especial reference to treatment. There are many illustrations and the author's easy style, with the book's good typography make the reading pleasant.

R. B.

Genitourinary Diagnosis and Therapy; for Urologists and General Practitioners. By Dr. Ernst. Translated and edited by Bransford Lewis, M. D. Mosby Co., St. Louis. Price, \$2.50.

This concise work of about 200 pages written by Portner and translated by Bransford Lewis deals mainly with therapy. Here and there we find a brief but stimulating word about diagnosis. The entire catalog of genito-urinary diseases is included in the text, none being too rare for mention. In many places the translator has indulged in parenthetical additions, which would seem to have some practical value. On the whole the most favorable comment to be made upon the book is that it may possibly be useful. In the appendix Sophian has added a very good and short article on the serology and specific therapy of gonococcus infections. The editing is most reprehensible. Prescriptions abound everywhere and in all of them in which the use of the dram sign is manifestly intended the ounce sign appears. This may be attributed to a lack of scruples, for it is quite obvious after a cursory examination of the text that the publisher had none. It is to be hoped that the victims of the many misprints may at least be few. M. S.

Diseases of the Liver, Gall-Bladder and Bile-Ducts.

By Humphry Davy Rolleston, M. A., M. D. (Cantab.), F. R. C. P. Macmillan & Co., London, 1912. Price \$7.00.

There is, so far as the reviewer knows, no book on diseases of the liver, gallbladder and bileducts in the English language which can compare with Rolleston's work, the first edition of which appeared in 1904. The book is not padded with details of anatomy and physiology, for which the reader is referred to the classical treatises on these subjects. Etiology and pathology are carefully and fully considered, but the great value of the book is due to the most excellent description of clinical manifestations of the diseases discussed. Statistical details have been incorporated and individual case records included in the text, the former enhancing its value as a reference work, the latter making it more interesting reading. To go into a discussion of Rolleston's views, no doubt familiar to the student of the subject, would be of no profit here. The book can be heartily recommended to those whose libraries do not already contain a copy.

R. B.

Diet Lists of the Presbyterian Hospital, New York City.

Compiled, with notes, by Herbert S. Carter, M. D., Assistant Visiting Physician to the Presbyterian Hospital, Associate in Medicine at Columbia University, etc. 12mo of 129 pages. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.00 net.

As a result of the increased interest taken in the subject of dietetics by the profession as a whole, we are now being flooded by a large number of books on the subject. This little book is a compilation of diets, many of which were primarily employed in the Presbyterian Hospital, to which have been added other well-known dietary regimes introduced within recent years. It likewise contains a table of standard portions and a table of food values. Unfortunately, like so many other books gotten out these days, it is made to sell. The subject matter of the book could easily have been printed in 50 pages instead of 120, the typical ulcer diet, for example, occupying 15 pages. "The Composition of American Foods" was taken from well-known standard tables and could easily have been left out without in any way impairing the usefulness of the book, this alone occupying at

present over 20 pages. To those interested in hospital dietaries, where a certain amount of routine is necessary, the book will prove of interest. R. B.

Collected Papers By the Staff of St. Mary's Hospital (Mayo Clinic) 1912. Octavo of 842 pages, 219 illustrations. Philadelphia and London; W. B. Saunders Company, 1913. Cloth, \$5.50 net.

To recommend a collection of papers from the Mayo Clinic to the attention of the profession is superfluous. Although the book contains no single striking contribution to the advance of surgical science, any observations based on such a wealth of clinical material and made with a sound and sane judgment cannot fail to be of interest. This wealth of material makes the statistical reports of particular value, many of them cannot be paralleled elsewhere. Especially noteworthy are the reports on splenectomy, with a series of 18 cases of splenic anemia, on tumors of the urinary bladder, with 118 cases, and the reports on gland involvement in gastric cancer, a study of 200 resected specimens. Among the pathologic papers may be mentioned Wilson's on tumors of the kidney. He shows the Grawitz tumors to be not hypernephromas, i. e., of adrenal origin, but nesonephromas, originating from remnants of the primitive kidney itself. That all of the Mayo's expositions of their technique are worthy of study goes without saying, among them are papers on cancer of the rectum, jejunostomy, surgery of the spleen, on the opening in the mesocolon in posterior gastrojejunostomy, and Judd's papers on prostatectomy. A number of papers on diagnostic problems and on questions of internal medicine are also of interest and value. L. E.

Gonorrhea in Women, Its Pathology, Symptomatology, Diagnosis, and Treatment: Together With a Review of the Rare Varieties of the Disease Which Occur in Men, Women and Children. By Charles C. Norris, M. D., Instructor in Gynecology, at the University of Pennsylvania. Octavo of 521 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$6.00 net; half morocco, \$7.50 net.

This comprehensive work on such an important subject is presented in a most unusual and attractive manner. The author has given us in a volume of some 500 pages an exhaustive, yet highly practical study of this disease, covering the entire field from its earliest history to the present-day methods of laboratory and clinical diagnosis, pathology, treatment and complications. The chapters on sociology and prophylaxis, enumerating various methods of control by governments and communities for the suppression and limitation of this social evil are of particular interest at this time, when civic bodies, municipalities and individuals not alone confined to our professional members are endeavoring to thrash out the subject of the "red plague." There is much food for thought herein expressed. A vast amount of time has been expended by this student in the compilation of many valuable references; and in fact the whole work is a most admirable presentation, for which not only the author and his coworkers deserve great credit, but also the publishers, the paper and type being of the best. The illustrations, while not too profuse, are excellent, mostly from actual photographs. In my opinion, this is a work that will live and should not only be in the library of every specialist in diseases of women, but also on the shelves of the general practitioner. F. P. T.

A System of Treatment. Edited by Arthur Latham and T. Crisp English. 4 vols. Macmillan Co., New York, 1912.

This encyclopedic work in four large volumes aims to cover the medical and surgical treatment of all diseases. The purpose of this rather bulky work seems to have been acceptably accomplished and there remains practically nothing that can be added to it to insure completeness. Only the constant changing of additions to our medical and surgical armamentarium can vitiate the value of such a reference work as this, but that is a weakness to which most scientific books are susceptible. Yet, large as this system is, treatment in extenso of any particular disease is not usually given. Another objection might be raised that too much ground is covered and, since the volumes are far from being compact and handy, why not refer to the original sources in each field? General Medicine, the whole scope of Surgery, Tropical Diseases, Eye, Ear, Nose and Throat, Obstetrics and Gynecology, and Skin Diseases, are all covered in these four volumes by men who are each eminent in their specialties. In general the work compels admiration and appreciation but is rather appalling as to bulk and not reassuring as to practical usefulness.

E. H. T.

Massage—Its Principles and Technic. By Max Bohm, M. D., of Berlin, Germany, edited, with an introduction, by Charles F. Painter, M. D., Professor of Orthopedic Surgery at Tufts Medical School, Boston. Octavo of 91 pages, with 97 illustrations. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$1.75 net.

This is a good book. It is a particularly good book; and none the less so because there are but 71 pages of illustration and text combined, and even then quite three-fourths of the space is taken up with the illustrations. Now a man who has a message and who in these days of endless repetition and tiresome elaboration is so unselfish as to deliver himself of that message in 15 or 16 pages of print may properly be regarded as a public benefactor. Peculiarly is this so when the author is a German; for German medical writers are the most ponderously prolix perpetrators of literary impositions still at large.

An explanation of the author's self suppression is found in the introduction. Without parading the fact he has dedicated his book to his teacher—has written it in reality as a tribute to the memory of that teacher. We quote the last paragraph of his introduction: "The technic of the massage described is essentially that which is employed in Hoffa's Clinic." (Any but a devoted and grieving pupil might have crabbled it for his own and found very near home eminent precedent for so doing. "If I should succeed in preserving after the death of its author an interest in this easily understood form of massage and extend its practice, the aim of this book would be accomplished.")

As an illustration of what Bohm might have done we may add that before us is another treatise on massage by a practitioner of eminence, with various dislocated fragments of the alphabet after his name, in which the same ground is covered in some 360 pages, and there are no illustrations at all. But can massage be learned from books or taught in correspondence schools? We think not. If it be possible to learn massage through studying text and illustration we know no book among the many treatises we have read which we would prefer to the one we are reviewing. Nor do we think that our judgment is materially influenced through the fact of our having also been a pupil of Hoffa's. If asked to select one we should recommend Bohm's book.

Massage is in our judgment an art rather than a science. Though it calls for some knowledge of

anatomy and physiology, it is largely intuitive. We can always impart the hand grips and manipulations of massage. But that indefinable, but by the patient always recognizable quality, which differentiates the true masseur from the husky rubber cannot be imparted. If it isn't there, it never will be. Of no group of practitioners of the various branches of the healing art might it so truthfully have been said that while "Many are called, but few are chosen."

J. T. W.

Diseases of the Stomach, Including Dietetic and Medicinal Treatment. By George Roe Lockwood, M. D., Professor of Clinical Medicine in the Columbia University; Attending Physician to Bellevue Hospital, New York. In one octavo volume of 624 pages, with 126 engravings and 15 plates. Cloth, \$5.50, net. Lea & Febiger, Philadelphia and New York, 1913.

It is a great pleasure at last to review a book on the stomach which is abreast of modern thought and physiology: one that reflects the author's opinions and experiences, and which deals frankly and honestly with the question of therapeutics instead of piling up a junk-room of methods and drugs many of which were never used to any extent by their originators—let alone by anyone else.

The introduction of brief case histories is also an advantage because the accounts of disease in a text book are always composite pictures that cannot always fit the case in hand. It encourages the man with a puzzling case to find that Dr. Lockwood has seen gastric ulcers with anacidity and no pain, and carcinomas with hyperacidity. He reports his cases as he has seen them and if they do not always conform to theory he cannot help it—the good Lord will not always read Osler.

The new radiologic work is well abstracted and presented in a form that will be welcomed by the man who wants to know what the X-ray can actually do to help him. Screen work is badly slighted but this is the fault of the American roentgenologists as a class. The time has come when a man cannot hope to do stomach work without a good X-ray equipment.

The book is a storehouse of valuable statistics from the experience of the author and from men like the Mayos, Moynihan, etc. Some of the conclusions may be a little startling to those who have not been following the literature of the subject. For instance, that achylia is found so frequently without any symptoms; that hyperacidity can be found in four per cent of cancer cases and twenty per cent of enteroptotics, etc. It is a pleasure to see how fully the author appreciates the interrelations between all parts of the tract; the effect of the appendix and gall-bladder upon the stomach, etc. It is strange, however, that he could still entitle his book "Diseases of the Stomach." Realizing the immensity of the field, the author probably intended to limit himself to this one organ but his book will be referred to as a guide to the diagnosis and treatment of disorders of digestion; and the final chapter on appendicitis, gall-stones, tabes, constipation, etc., shows how impossible it is to draw the line anywhere.

The great clinical importance of atony and gastroptosis would have been more apparent to the reader if chapters X and XVI had been combined or at least put next to each other in the book. Moreover, how can one write of gastroptosis without a discussion of enteroptosis, floating-kidney, movable cecum, and the underlying habitus. It is not sufficiently emphasized that the stomach is largely a hopper to pass food to the duodenum as needed and that the small intestine is the real organ of digestion. Gastric and duodenal ulcer are treated together in one chapter, we believe with great advantage. Most of the ulcers are so

near the pylorus that there would seem to be little need for separate articles with separate treatment, etc.

Our pleasure over the book was spoiled for a moment on finding pictures of "the writer's gastroduaphane," and the "writer's intra-gastric electrode," until we read his humble apology for having devised these instruments and his confession that although he began using them with enthusiasm he has long since given them up.

Pepsin he has not found of service; he has not been able to satisfy himself that atrophin does any good; and sometimes he thinks it is worse than the disease. In several places he advocates the use of silver nitrate without, we think, sufficient warning as to the danger of argyria. It is worthy of note that in but seven per cent of cancer cases did he find a history that might be construed as that of ulcer; and he says, rightly, that one of the most striking phenomena of malignant disease of the stomach is the sudden occurrence of dyspepsia in those of cancer age who have previously been free from all indigestion.

He accentuates the importance of rest in bed in ulcer cases and says that any treatment without this is but half-hearted. He proclaims the need for dietetic care after gastroenterostomy,—some surgeons are proud to have the patient eating everything the day he leaves the hospital. The author is careful about admitting new laboratory tests, and has spared us some of the old ones. It is a relief, for instance, that Teichmann's test for occult blood has at last gone to its rest.

The book is not overloaded with useless and antiquated cuts—heirlooms in the book business. The English is fluent and errors are few. The printer apparently insisted on an "o" in secretin; and he could not see the need for differentiating hyper and hypo-, but otherwise he did very well.

The book can be most heartily recommended for all readers.

W. C. A.

FRAUDULENT RADIOACTIVE WATERS.

The U. S. Department of Agriculture, through the Bureau of Chemistry, today issued the following warning to the public in regard to the so-called radioactive mineral waters offered for sale in bottles:

"There are indications of the beginning of an attempt to perpetuate a great fraud on the American people through advertising certain mineral waters as possessing radioactivity. These waters, in some cases, are taken from springs the waters of which as they come from the ground do possess certain radioactive properties. Examination of many of these waters by the Department's specialists indicate that whatever radioactivity they possess at the spring is due almost entirely to radium emanation rather than to the presence in the water of any substance possessing radioactivity. These emanations in the form of gas quickly disappear from the water and as a result, after the water has been bottled a short time, it will possess practically no radioactivity. The belief long held by many people that some mineral waters used at the springs are more effective than when bottled has been explained by some authorities on the ground that the beneficial effect of these waters is due to radioactivity. As the radioactivity disappears soon after the water is taken from the spring, any effect due to the radioactivity must be lost in a short time. If the radioactivity of a water in a spring is 100, four days after bottling it will be only 50 and twelve days after bottling 10. In a month it will be practically nothing compared with the original radioactivity of the water at the spring. The public, therefore, is warned to regard with suspicion any water

advertised as possessing radioactivity. As far as the Government's specialists have been able to ascertain, no bottled water, no matter how radioactive it may have been at the spring, retains this radioactivity for any length of time.

"The Department is now investigating a number of the so-called radioactive waters with the object of securing evidence that can be made a basis of prosecution for misbranding. In the past before the Food and Drugs Act was enacted, a number of mineral waters made claim to curative properties which they did not possess and succeeded in creating a misplaced confidence on the part of the consumers. This was particularly true of a number of imported waters which were sold extensively in the United States with a statement on the bottle that they were wonderful or magical cures for all sorts of incurable or chronic ailments. The Treasury Department, acting in co-operation with the Department of Agriculture, now refuses admission to the country of foreign waters labeled so as to mislead consumers as to their real or curative properties. The Department fears that unless the public is warned that the fraudulent trade in so-called radioactive waters will develop, just as the fraudulent trade in other mineral waters was developed to the point where people with strong imaginations will supply their bottlers with all sorts of testimonials asserting that these supposed radioactive waters have effected wonderful cures."

SCHOOL FOR HEALTH OFFICERS.

Beginning this fall Harvard University and the Massachusetts Institute of Technology are to maintain in cooperation a School for Public Health Officers. The facilities of both institutions are to be available to students in the School and the Certificate of Public Health (C. P. H.) is to be signed by both President Lowell and President Maclaurin.

The object of this School is to prepare young men for public health work, especially, to fit them to occupy administrative and executive positions such as health officers or members of boards of health, as well as secretaries, agents, and inspectors of health organizations.

It is recognized that the requirements for public health service are broad and complicated, and that the country needs leaders in every community fitted to guide and instruct the people on all questions relating to the public health. To this end, the instruction of the new School will be on the broadest lines. It will be given by lectures, laboratory work, and other forms of instruction offered by both institutions, and also by special instructors from national, State, and local health agencies.

The requirements for admission are such that graduates of colleges, or technical and scientific schools, who have received adequate instruction in Physics, Chemistry, Biology, and French or German, may be admitted to the School. The medical degree is not in any way a pre-requisite for admission, although the Administrative Board strongly urges men who intend to specialize in public health work to take the degree of M. D. before they become members of the School for Health Officers.

The Administrative Board which will conduct the new School is composed of Professor William T. Sedgwick, of the Massachusetts Institute of Technology; Professor Milton J. Rosenau, of Harvard; and Professor George C. Whipple, of Harvard. Professor Rosenau of Harvard has the title of Director, and the work of the School will be under his immediate supervision.

THE SAN FRANCISCO POLYCLINIC AND THE SAN FRANCISCO COLLEGE OF MEDICINE COMBINED.

The general tendency to consolidate for more effective work has made a commencement in our city by the announcement of the union of two post graduate schools. The S. F. College of Medicine, while the youngest of teaching institutions, has been amongst the most successful. Since its incorporation in 1905 it has matriculated some three hundred students. It is from now on to continue its special courses in conjunction with the older institution in the new college building that opens its doors this month. San Francisco from its position, wealth of clinical material, and advantages of climate, should be the post graduate center of the entire far west. It is to be hoped that this may now be realized, and that the example of union for the common good may prove contagious and lead to further combinations among our all too numerous medical schools.

FORM OF DECLARATION REQUIRED OF IMPORTERS OF COCAINE.

The U. S. Department of Agriculture, acting under Treasury Decision No. 33456, dated May 29, 1913, with relation to the importing and use of cocaine, coca, and their derivatives or preparations containing them, has prepared and has ready for issue at all of its branch laboratories and at the Bureau of Chemistry in Washington, copies of the declaration form which must be subscribed to by all importers of and dealers in these products. These blanks will be furnished free on request from importers and dealers.

The purpose of the new system of declaration is to prevent the indiscriminate and promiscuous use of cocaine, coca, and derivatives or preparations containing them, on the ground that these things are dangerous to the health of the people of the United States. At the same time, under this declaration entry of these drug products is permitted for legitimate use in medicine. The form of declaration requires the importer to declare under oath that the import is designed for use in a manner not dangerous to health, and that he will secure from each and every person, firm or corporation to whom the import is sent, the same declaration as to the use the recipient will make of that portion of the import sold or sent to him. In addition, the importer must agree to allow accredited Government inspectors to go over statements from persons to whom he has supplied the goods, and at the end of the year the importer must report to the Bureau of Chemistry the amount of these products that he has on hand on the 1st day of January in each year.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Digipuratum Ampules.—Each ampule contains 1 cc. of a digipuratum solution, equivalent to .1 gram digipuratum. Knoll and Co., New York (Jour. A. M. A., Aug. 23, 1913, p. 668).

Digipuratum Solution for Oral Use.—Vials containing 10 cc. digipuratum solution, each cc. representing .1 gram digipuratum. Knoll and Co., New York (Jour. A. M. A., Aug. 23, 1913, p. 568).

Tetanus Antitoxin.—For description of Tetanus Antitoxin see N. N. R., 1913, p. 218. H. M. Alexander and Co., Marietta, Pa.

Acne Vaccine.—For description of Acne Vaccine see N. N. R., 1913, p. 221. Schieffelin and Co., New York.

Pertussis Vaccine.—Pertussis Vaccine is a Bacillus Bordet-Gengou Vaccine. Schieffelin and Co., New York.

Meningococcus Vaccine.—For description of Meningococcus Vaccine see N. N. R., 1913, p. 223. Schieffelin and Co., New York.

Coli Vaccine (Polyvalent).—For description of Bacillus Coli Vaccine see N. N. R., 1913, p. 221. Schieffelin and Co., New York.

Gonococcus Vaccine (Polyvalent).—For description of Gonococcus Vaccine see N. N. R., 1913, p. 223. Schieffelin and Co., New York.

Pneumococcus Vaccine (Polyvalent).—For description of Pneumococcus Vaccine see N. N. R., 1913, p. 224. Schieffelin and Co., New York.

Staphylococcus Vaccine (Polyvalent).—Schieffelin and Co., New York.

Staphylococcus Albus Vaccine (Polyvalent).—Schieffelin and Co., New York.

Staphylococcus Aureus Vaccine (Polyvalent).—For description of Staphylococcus Vaccine see N. N. R., 1913, p. 225. Schieffelin and Co., New York.

Streptococcus Vaccine (Polyvalent).—For description of Streptococcus Vaccine see N. N. R., 1913, p. 226. Schieffelin and Co., New York.

Typhoid Vaccine.—For description of Typhoid Vaccine see N. N. R., 1913, p. 227. Schieffelin and Co., New York.

BOARD OF MEDICAL EXAMINERS, CALI- FORNIA, AUGUST, 1913, SESSION.

Passed.

- Calif. Eclectic Med. Coll., Cal.; (5, 22, 1913), 82.2, 90.4.
- Coll. of Phys. & Surgs., S. F., Calif.; (6, 8, 1911), 75; (6, 6, 1912), 76.5**;
- (6, 5, 1913), 87.3.
- Hahnemann Med. Coll. of the Pac., Calif.; (4, 25, 1912), 75.*;
- (4, 25, 1913), 77, 78.8, 79.9, 81.5, 82, 84.5, 87.5, 87.5, 90.3;
- (6, 19, 1913), 84.4.
- Leland Stanford Jr. Univ., Calif.; (5, 19, 1913), 80.1, 84.2, 86.5, 88.6, 89.5, 90.9, 91.1.
- Oakland Coll. of Med. & Surg., Calif.; (5, 22, 1913), 81.1, 84.4, 84.8;
- (5, 27, 1909), 86.3.
- Univ. of Calif., Med. Dept., S. F., Calif.; (5, 13, 1913), 86.1, 88.2, 90, 90.4, 91.3, 93.8, 93.9.
- Univ. of Calif., Med. Dept., L. A., Calif.; (6, 10, 1913), 87.2, 88.9;
- (6, 20, 1912), 99.2.
- Univ. of So. Calif., Coll. of Phys. & Surgs., Med. Dept., Calif.; (6, 14, 1906), 77.9;
- (6, 12, 1913), 79.8, 80.2, 80.7, 81.7, 82.7, 83.4, 84.4, 85, 86.4, 86.6, 87, 87.9, 89.3, 90, 91, 91.6, 91.7, 92, 92.7, 92.9.
- Cleveland Univ. of Med. & Surg., Ohio; (3, 23, 1897), 75.2 plus 5, 80.2*.
- Coll. of Phys. & Surgs., Chicago, Ill.; (4, 21, 1896), 83.1 plus 5, 88.1*.
- Denver & Gross Coll. of Med., Colo.; (5, 18, 1906), 92.2.
- Denver Homeopathic College, Colo.; (4, 21, 1904); }
Denver and Gross Coll. of Med., Colo.; (5, 18, }
1906), 75. }
- Harvard Med. Sch., Mass.; (6, 28, 1911), 84.9;
- (6, 19, 1913), 87.8.
- Hospital Coll. of Medicine, Ky.; (6, 27, 1901), 86.4 plus 5, 91.4.
- Johns Hopkins Med. Sch., Md.; (6, 11, 1913), 87.3;
- (6, 12, 1906), 88.4.
- Marion-Sims Coll. of Medicine of St. Louis, Mo.; (4, 8, 1898), 76.1 plus 5, 81.1.
- Medical Coll. of Indiana, Ind.; (2, 26, 1885), 75, plus 10, 85.
- Medical Sch. of Maine; (7, 6, 1901), 80.5 plus 5, 85.5.
- N. Y. Med. Coll. & Hosp. for Women, N. Y.; (5, 14, 1895), 81.6 plus 5, 86.6.

Northwestern Univ., Evanston, Ill.; (6, 20, 1901), 90.6 plus 5, 95.6.
 Ohio Miami Med. Coll. Univ. of Cinn., Ohio; (6, 1, 1912), 76.4.
 Omaha Med. Coll., Nebr.; (4, 4, 1895), 75.3 plus 5, 80.3**.
 Rush Med. Coll., Ill.; (6, 18, 1902), 80.3 plus 5, 85.3; (5, 23, 1894), 82.7 plus 5, 87.7; (—, —, 1898), 88.8 plus 5, 93.8.
 St. Louis Coll. of Phys. & Surgs., Mo.; (3, 23, 1898), 82.7 plus 5, 87.7.
 St. Louis Univ. Sch. of Med., Mo.; (6, 5, 1913), 87.3.
 Univ. of Buffalo, N. Y.; (5, 28, 1909), 79.9.
 Univ. of Colorado, Med. Dept., Colo.; (6, 4, 1913), 84.7, 88., 91.2; (6, 7, 1900), 82.7 plus 5, 87.7.
 Univ. of Ill., Coll. of Med., Med. Dept., Ill.; (6, 4, 1912), 83. 5; (6, 5, 1906), 86.1; (6, 10, 1913), 90.3.
 Univ. of Indianapolis, Med. Dept., Ind.; (3, 31, 1897), 84.1 plus 5, 89.1.
 Univ. of Louisville, Sch. of Medicine, Ky.; (7, 7, 1903), 89.1 plus 5, 94.1.
 Univ. of Mich., Dept. of Med. & Surg., Mich.; (6, 18, 1908), 87.1.
 Univ. of Nashville, Med. Dept., Tenn.; (3, 27, 1902), 87.5 plus 5, 92.5*.
 Univ. of Pennsylvania, Pa.; (6, 18, 1902), 78.1 plus 5, 83.1; (6, 8, 1898), 83.7 plus 5, 88. 7; (6, 18, 1913), 88.7.
 Univ. of Pittsburgh, Pa.; (6, 14, 1911), 75*.
 Univ. of Vt., Med. Dept., Vt.; (6, 28, 1913), 84.6.
 Vanderbilt Univ., Med. Dept., Tenn.; (5, 20, 1913), 78.5, 84.5, 86.3, 87.4.
 Washington Univ., Med. Dept., Mo.; (5, 25, 1905), 77.5.

Failed.

Calif. Eclectic Med. Coll., Calif.; (5, 22, 1913), 64.2, 66.9, 70.1, 72.9.
 Coll. of Phys. & Surgs., S. F., Calif.; (6, 8, 1911), 29.4*.
 Cooper Med. Coll., S. F., Calif.; (5, 9, 1906), 72.5.
 Univ. of So. Calif., Coll. of Phys. & Surgs., Med. Dept., Calif.; (6, 12, 1913), 72.2.
 National Univ., St. Louis, Am. Med. Coll., Mo.; (6, 2, 1913), 69.4.
 Baltimore Med. Coll., Md.; (5, 31, 1913), 63.6.
 Barnes Med. Coll., St. Louis, Mo.; (4, 3, 1893), 54.5 plus 10, 64.5.
 Bowdoin Med. Coll., Maine; (7, 8, 1896), 64.3 plus 5, 69.3*.
 Chicago Coll. Med. & Surg., Ill.; (5, 19, 1913), 59.9.
 Eclectic Med. Coll., Cinn., Ohio; (5, 12, 1913), 70.7.
 Hahnemann Med. Coll. & Hosp., Ill.; (3, 25, 1882), 40.4 plus 15, 55.4; (4, 26, 1900), 70.8 plus 5, 75.8; fell below 60% in one subject.
 Med. Coll. of the First Higher Coll. of Tokyo, Japan; (12, 27, 1892), 68 plus 10, 78; fell below 60% in one subject.
 Ohio Med. Coll., Cincin., Ohio; (3, 8, 1887), 64. plus 10, 74.
 Royal Coll. of Phys. & Surgs., Edinburgh & Glasgow, Scotland; (7, —, 1911), 71.
 Royal Univ. of Naples, Italy; (12, 18, 1903), 59.2****.
 Univ. Med. Coll. of Kansas City, Mo.; (5, 14, 1909), 59.8.

Osteopathy—Passed.

Am. Sch. of Osteopathy, Mo.; (6, 2, 1913), 87.1.
 Los Angeles Coll. of Osteopathy, Calif.; (6, 1, 1911), 75.**; (1, 30, 1913), 75., 75.7, 77.6*, 78.7, 80., 81.3*; (6, 2, 1910), 75.*; (1, 26, 1912), 75.6, 80.; (6, 4, 1913), 75.7, 76.3, 77.2, 78., 78.9, 79., 80.9, 82.3, 82.4, 82.8, 82.9, 83.9, 84.8, 86.9, 88.4; (also a graduate of Am. Sch. Osteop., Mo., 6, 14, 1906), 89; (6, 6, 1912), 77.3, 79.9, 81.**; only one subject required.
 Pacific Coll. of Osteopathy, Calif.; (6, 19, 1913), 77.1; (6, 15, 1911), 78.2***; (6, 19, 1913), 81.9, 86.8.

Osteopathy—Failed.

Am. Sch. of Osteopathy, Mo.; (6, 1, 1909), 50.9.
 Los Angeles Coll. of Osteopathy, Calif.; (1, 30, 1913), 39.5, 66.; (6, 4, 1913), 61.4, 61.5, 66.3, 67.4, 70.4; (6, 6, 1912), 64*; only one subject required; (also graduate of Am. Sch. of Osteop., Mo.; 6, 14, 1906), 70.9*, 72.1*; (6, 1, 1911), 67.8*.
 Pacific Coll. of Osteopathy, Calif.; (6, 20, 1912), 60.6*, 71.2*, 73.**.
 Philadelphia Coll. & Infirmary of Osteopathy, Pa.; (6, 22, 1905), 65.5**.
 *Taken before.

New Licentiates—Medical Doctors.

Allen, W. B.; Aller, D. I.; Allgover, H. A.; Avery, L. G.; Bames, O.; Barnes, P. D.; Barnett, G. DeF.; Bayley, A. J.; Beard, J. L.; Black, W. L.; Blake, W. P.; Bostick, J. B.; Bowman, K. M.; Breier, C. A.; Bronson, E.; Brown, C. E.; Burney, T. M.; Burton, F. A.; Bybee, A.; Carter, R. A.; Catton, J. H.; Chamley, O. D.; Cline, H. X.; Coleman, E. P.; Cook, R. C. N.; Cornell, E. H.; Cox, H. T.; Crawford, O.; Cress, W. W.; Crispin, E. L.; Curtiss, W. H.; Davis, H. J.; Dearborn, R. R.; Dietrich, H.; Dixon, H. B.; Donnell, R. H.; Duns-moor, R. M.; Ellinwood, L. McD.; Everly, W.; Farnsworth, D. C.; Fearon, W. M.; Felch, M. F.; Fisher, C. A.; Fleissner, C. M.; Fleming, S.; Fox, W. F.; France, G. D.; Fuller, G. W.; Ginsburg, S. S.; Goff, A.; Haggert, F. S.; Harbaugh, R. W.; Harding, M. C.; Hayes, D. J.; Henke, G. B.; Herlihy, J. S.; Hill, E. W.; Howson, C. R.; Jones, E. W.; Jones, Robt. Melvin, Jr.; Jones, Robt. Maxwell; Kelley, G. A.; Kindig, Z. Z. M.; Leach, C. N.; Lucey, D. D.; Mack, C. W.; Mackenzie, W. W.; Makinson, F. R.; Marks, S. H.; May, E. S.; McAl-lister, O. O. T.; McCrea, A. B.; Mehrtens, H. G.; Mitchell, W. E.; Morgan, J. D., Jr.; Munger, A. L., Jr.; Murayama, M.; Naylor, W. A. A.; Nicholson, J. W.; Palmer, H. C.; Pierce, H. F.; Pringle, J. T.; Rea, T.; Reeves, J. W.; Risdon, R. C.; Rodenbaugh, F. H.; Rogers, A. R.; Ruggles, H. E.; Safely, G.; Sands, R. A.; Schultz, W. W.; Schwartz, D. Z.; Seward, L. S.; Shattuck, A.; Smith, R. L.; Stolle, F.; Tranter, C. L.; Van Vorhis, J. H.; Von Gel-der, C. E.; Warner, H. E.; Webster, D. P.

New Licentiates—Osteopaths.

Aaronson, J. A.; Arthur, M. A.; Balfe, M. E.; Bordsen, T. L.; Brigham, H. B.; Bryant, J. J.; Cleaver, J. M.; Coffey, E. K.; Collins, F. T.; Dilley, A. E.; Ellsworth, G.; Faris, J. B.; Gass, L. D.; Giesy, N. W.; Girvin, P. S.; Gotham, T. B.; Han-sen, J. H.; Hansen, L. L.; Hebb, F. E.; Hodgman, F. H.; Kavanaugh, B.; Lynch, C. G.; MacKinnon, S. D.; Reeks, L. D.; Ross, A. McR.; Swortzel, W. R.; Vollbrecht, W. J.; Waldo, M. J.; Waldo, R. E.; Willett, N. E.; Williams, M. L.; Wilson, S. M.; Woods, R. A.; Zinn, E. G.

NEW MEMBERS.

Greene, Frances Marx, Massachusetts.
 Muller, F. W., San Diego, Cal.
 Leavitt, E. I., San Francisco.
 Dickenson, C. E., Fresno.
 Jensen, C. A., Ventura.
 McNaught, H. Y., San Francisco.
 Barkan, Adolph, San Francisco.
 Tobriner, Oscar, San Francisco.

RESIGNED.

Yacoubi, H. B., Pasadena.
 Carter, R. S., San Diego.

DEAD.

Ray, C. Wilbor, Los Angeles.
 Spaulding, Jane E., Santa Barbara.
 Laird, Mary Jane, Sanger.
 Hicks, W. T., Elk.
 Petersen, Fred J., Camp Meeker.
 Forline, Henry Harrison, Tustin.
 Fraser, J. C., Pasadena, Cal.
 Wigand, Theodore, San Francisco.

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VOL. XI NOVEMBER, 1913. No. 11

EDITORIAL NOTES

OF UTMOST IMPORTANCE!

For your own benefit and protection, *please remember these facts:*

The large majority of suits for damages for alleged malpractice which we are called upon to defend, are based upon an alleged improper treatment of a fracture.

In every case of fracture that comes to you for professional treatment, see that an *X-ray plate is made and that you keep it in your possession; do not give it to the patient.*

Whenever possible, have some other physician see the patient with you, make a careful examination of the fracture, and *be able to testify that it was properly set and bandaged.*

Use the fluoroscope if you like, but in addition be sure to have a plate made; it will remain a permanent record of the condition at the time it was taken.

In two instances where suits were brought, the member had thoughtlessly given the X-ray plates to the patient and of course the patient would not produce them; they were "lost."

In 1896, Dr. Jones gave a demonstration of the then very new X or Roentgen rays before the San Francisco County Medical Society. In the

course of his remarks he expressed the opinion that the time would come when any physician who treated a fracture case without making an X-ray examination of it, would render himself liable to a suit for damages. Many of those present ridiculed this opinion and one went so far as to deplore the discovery of the X-rays, saying that they would make surgeons less careful and less skilful. Carelessness in this regard—not taking and keeping an X-ray plate—has cost the Society \$4,000 in the defense of suits which came about more or less as predicted.

To put it graphically, this carelessness has cost each individual member almost two dollars, for the money for defense comes out of our pockets; the more the work costs the Society, the higher is the required assessment.

Have an X-ray plate made in every case of fracture.

Keep the plate—don't give it to the patient.

Have a consultant if possible.

These things are for your own protection and a little care and thought may keep you from a great deal of trouble and loss of time and annoyance in the future.

Also, see that your dues are paid promptly before March 1st.

PUBLIC HEALTH.

If memory is not at fault, it was Mr. Roosevelt who started the National Conservation movement and suggested that the health and lives of the citizens of our country represented a something the conservation of which was quite as important as that of coal or lumber. These Conservation Congresses have continued; the fifth is to be held in Washington November 18, 19 and 20. In this connection it is equally interesting to note that the President, Mr. Wilson, seems to look upon election planks as real, material things, and upon the promise of his party to extend public health legislation by the congress as something that must receive attention. Mr. Wilson is too broad a thinker not to realize the importance and the value to all the people, of a broad and well-developed public health service. How it may be done is of little consequence; a department, a bureau, a service; it is all the same as to name, so long as the machinery and the funds and the men are provided to do the work and to safeguard properly health and life. It really looks as though there would be some congressional activity in the matter of public health work.

WHERE DOES THE "PHYSICIAN" COME IN?

It is a well recognized fact that the profession of medicine is a most unselfish one. Medical men are continually striving along lines of prophylaxis, with results which have already greatly impaired the income of the profession as a whole. And now, assisted by various hospital organizations and laboratories, the public may soon be taught to get along almost entirely without the services of so-called diagnosticians and therapeutists. In these days of self-starting automobiles, pianolas, Victrolas, of blood transfusions and tissue transplantations, self administered anesthetics and self performed operations, it is rather gratifying to stop and consider the advances made by the laboratory worker along the lines of diagnosis, thus enabling the patient to decide accurately for himself as to what ails him.

We have before us a prospectus issued by a local hospital for the benefit of its present and future patrons, in which it publishes its usual schedule of rates. In addition it gives prices for the Moro, Pirquet and Calmette tuberculin tests, Widal's, blood counts and cultures, urinalyses, gastric contents, Wassermann reactions, vaccines and for all sorts of X-ray views. This should prove of great value to the prospective patient. Knowing that the average physician no longer diagnoses tuberculosis without Pirquets (50c), Calmettes (\$1.00) and sputum examinations (\$2.50), is it not rational for him to get \$4.00 worth of tests right off before worrying a doctor who will eventually do this anyhow? And since Wassermann reactions for diagnosis cost \$25.00, why consult a specialist on syphilis who too must needs resort to the same test? *En passant*, we sometimes hear from serologists that to perform these tests for less than \$25 entails great financial loss; we are pleased to note their philanthropy as evidenced by offers to do these reactions at \$10 per if repeated in the treatment of a case. We will perhaps soon hear of individuals going to serologists for the first time to see if their sera are "still positive" or "still negative," thus saving \$15; like the patient in the story who, having heard that a certain M. D. charged \$10 the first visit, and \$2.50 each one following, on consulting this M. D. for the first time said: "Here I am again, Doc!" (Incidentally, the medico, after looking him over, shrewdly advised him to "continue the same medicine." But this is another story.) X-ray plates will, likewise, in the hands of the laity, prove of vast assistance, particularly in damage suits. We already know of several instances where patients left their surgeons to consult radiologists, not satisfied that any surgeon could treat even a simple

fracture, without displacement, unless he possessed an X-ray coil.

It is to be hoped that the future prospectus, copies of which every hospital association and advertising specialist will no doubt soon publish, will contain the tests for pregnancy, the gonococcic and luetin skin test, the alcohol serum test, the serum test for hyper or hypoglycemia, the tests for pancreatic or pituitary insufficiency as well as those for the N and cholesterolin content of blood, now so stylish abroad. For the benefit of those patients who are unable to diagnose their own cases after exhausting the possibilities of the tests mentioned in the prospectus at hand, we would urge them to note that for autopsies no charge is made. There is still another and really serious side to this question which we have chosen to discuss. And this is one which affects the conscientious physician as well as the patient who wishes the best that science affords. It is a fact that Wassermanns should be done in the larger percentage of cases which present themselves for diagnosis and treatment. Only in this way can we discover many otherwise hidden cases of lues. And in the treatment of syphilis, this test must be repeated a great many times. It is also a fact that on a great number of patients the X-ray should be used. We feel that no obscure case of gastro-intestinal disturbance has been completely studied until the fluoroscope and plate have been employed. How much are they in use now? In the diagnosis and treatment of pulmonary diseases, how much better would be our results if X-rays were in common use. To the above mentioned prospectus may we again refer, and find an explanation. Patients are made to look upon a Wassermann test or an X-ray plate as a high-priced piece of work. An office visit to a physician they rate at from \$1.50 to \$2.50; occasionally for an examination the well-to-do class will pay \$5 or even \$10. This is a relic of the days when patients would go to doctors whose sole methods consisted in feeling the pulse, taking the temperature, looking at the tongue, and perhaps placing an ear against the chest. But times have changed, and a thorough physical examination coupled with a careful history taking, as performed by a well-trained medical man, requires more time, more physical exertion and the expenditure of more mental effort than the patient realizes. Take, for example, an obscure nervous case,—the physician frequently spends several hours in examination alone, this has to be oft repeated and controlled. The charge is \$25 for a Wassermann, \$20 for one view of the head, perhaps there is a charge for an eye examination, and the patient has been charged \$50 or more, not including his doctor's fee. Now where does the man come in who has been doing the real work, the real worrying, and who after all is the one to correlate the results of his confrères. He is lucky if the average patient has anything left at all with which to meet his bill.

There is a way out of all this. We can not only point it out, but believe it must soon be adopted by many of us. It consists in the getting together of a number of men, each with a definite

specialty, this aggregation of medical men to employ a laboratory worker, so that a patient can come and be properly, thoroughly and quickly examined and treated for a reasonable amount of money; and where, because of the laboratory being handy, or the X-ray being accessible, all these methods will be more often used, to the benefit of the patient and to the credit of the doctor. We believe that the fame of a number of Eastern men rests upon just such organizations, and know of such combinations recently formed, working most successfully in several Western cities.

R. B.

UNIFORM MEMBERSHIP.

When medical societies were few in number and small in membership and had no direct relationship, the one with any other, it did not matter much how any particular society conducted its affairs; it might be as business-like or as slipshod as happened to be the case. Now, however, conditions have changed. Medical societies have taken definite shape and have formed into a definite organization with certain definite purposes. It became evident several years ago that some uniformity in the matter of membership was absolutely necessary. County units composed or made up state societies; they in turn made up the governing body, and more recently the actual membership, of the American Medical Association, and aside from all business considerations, the eternal question was: "When is a member not a member?" And it was a puzzler. Last year the A. M. A. called together the secretaries of state societies to discuss this and other problems, and the meeting was one of the most successful on record. Some fundamental conclusions were reached and agreed upon unanimously. All societies should have the fiscal year coincide with the calendar year; all memberships should automatically terminate on December 31st of each year; all members of a previous year who pay their dues within 60 or 90 days of the first of the current year should be considered members as from January 1st of that year, while those who pay after the fixed date (in California it is March 1st) should be recorded as members only from the date of payment of dues. Pennsylvania, as we judge from the report of their last meeting, is having some little trouble in changing its by-laws to meet these changed conditions, for apparently some members are ultra-conservative and do not want to change—just because it is a change. To such members in Pennsylvania we can only say that this plan of compelling reports and payments to be made before March 1st and of terminating all memberships on December 31st, has proved to be of the greatest value here in California. It has eliminated two-thirds of the trouble formerly experienced in checking up membership and has brought order out of chaos. One person, under sufficient bonds and with a reliable audit of his affairs, should collect and handle funds; two persons at two different places are not in close enough

touch to do business satisfactorily. Transfer of membership from state to state was considered long and carefully but it was agreed to be quite out of the question, because of the lack of uniformity in the requirements and benefits attaching to membership in the different states. Between counties in the same state, however, the reverse is the case and transfer is universal. One thing is certain: a state medical society is now a business organization and should be conducted on business principles. Dues must be paid promptly and membership must terminate on a definite and specified date; there can be no such thing as a "delinquent member"; a physician must be a member or not a member.

Pay your dues promptly in January and take no chances of forgetting!

WHAT NOW?

Largely because of the advertising propaganda of a single firm, the Council on Pharmacy and Chemistry was obliged to undertake a comprehensive investigation of the altogether improbable claimed superiority of the "natural" salicylic acid and sodium salicylate over the regular "synthetic" kinds. The investigation has shown:

1. Contrary to certain statements in the older literature, there is no difference in the toxic dose for animals between "natural" sodium salicylate, the most highly purified synthetic, and the cheapest commercial sodium salicylate now found on the market.
2. The evidence for the claimed clinical differences, as found in medical literature, is extremely unsatisfactory and inclusive.
3. No significant chemical impurities are present in commercial synthetic salicylate.
4. No difference can be detected clinically, either in the therapeutic or toxic effects, if the comparison is made under conditions which strictly exclude personal bias.

What now? Are we at last rid of the "natural" salicylate superstition? As a refrain to comprehensive and conclusive scientific investigations we ordinarily hear the protest, "But clinical tests are the thing—and these show the insufficiency of the scientists' conclusions." "We are concerned with the patient, and careful bedside trials have proven the value of the remedy." But in this case, careful bedside trials, made by men of recognized standing and under precautions which are possible only in hospitals, have tested the disputed question and have given an answer which we believe cannot be seriously questioned, namely, that the two kinds of sodium salicylate had an identical and undistinguishable action.

Of course the promoter will find some excuse for not accepting this clinical verdict, for acceptance would mean the loss of a paying line of proprietaries. But will the profession continue to listen to his "tales"? We hope not.

BOARD OF MEDICAL EXAMINERS.

On October 10th, the Governor appointed the Board of Medical Examiners under the "new law." The members are as follows:

Regulars—F. F. Gundrum, Sacramento, four years; Harry E. Alderson, San Francisco, three years; William R. Molony, Los Angeles, two years; H. Clifford Loos, San Diego, one year, and Samuel H. Buteau, Oakland, one year.

Homeopaths—Robert A. Campbell, Los Angeles, three years; Charles B. Pinkham, San Francisco, four years.

Osteopaths—D. L. Tasker, Los Angeles, four years; W. W. Vanderburgh, San Francisco, two years.

Eclectic—H. V. Brown, Los Angeles, one year.

This should make a very good board and if they proceed carefully and conservatively, and if the law is not declared unconstitutional, they may be able to prevent some of the crimes that could be committed by a weak or "generous" board under the provisions of the legislative atrocity known as the "new law." The JOURNAL certainly wishes them strength and courage, for they have a mighty hard task ahead of them.

DAMAGED GOODS—AND FOLLY.

Brieux's great play, "Damaged Goods," that most remarkable play-picture of the danger to the innocent from syphilitic infection, had quite a run at a New York theater and then went on the road, showing at various of the smaller cities. The power and force of Brieux's plays cannot be ignored by any thinking person, and of them "Damaged Goods" has the greatest value as an instructive lesson to the layman, more especially to the "female of his species." Two curious incidents are to be noted in this connection. A clergyman in San Francisco wrote an article for a daily paper in which he expressed his profound approval of the play, and of its lesson, but stated that the stage would have to preach such sermons to the public; that he could not do so from the pulpit. Now, that is curiously interesting. Why cannot the pulpit speak the truth concerning syphilis or anything else that is of the utmost importance to the health and the happiness of the congregation? Must the pulpit confine itself to mythical rewards and punishments and ignore material punishments, like syphilis? What is the reason that the *minister* may not say such things—but the *actor* may? It would be interesting to know the real reason for the clergyman's statement that his lips are sealed; that he cannot preach such a sermon to his flock. If it is that he has not the words or the thoughts, he might at least *read* the play to his congregation. The other suggestive incident is that of the ceremonial burning of Brieux's book, "Three Plays," by the members of a certain women's club in San Francisco, because it was "dirty". How is one to protect people who think it is dirty to show them

their danger and how much they need protection? The ostrich burying his head in the sand is a monument of wisdom in comparison to a lot of silly women burning a book that has, for them of all people, a message of the profoundest importance. If it were not so painfully indicative of hopeless stupidity it would be amusing.

GOING TO BUY ANYTHING?

Are you thinking of buying anything? If so, look through the advertising pages of your JOURNAL and see what firms carry the articles you want—and advertise in *your* JOURNAL. Go a step further than that and when you buy, let the firm know that you saw their advertisement in your JOURNAL and that your patronage is a result. We do not permit the advertisement of any firm or any article that is not reliable to appear in our advertising pages, therefore you may depend upon them as a safe and sound business directory. Cultivate the habit of looking through the advertising pages; no doubt you will quite often see the notice of some new thing that is exactly what you have wanted but did not know where to get. Some men seem to think it a waste of time to look through advertisements; they are foolish, for they might learn something there that they could not learn anywhere else. Help the man who helps you; our advertisers are helping you in the support of your JOURNAL; help them, as a slight return, by patronizing them; and let them know it.

CLINICAL CONGRESS.

Elsewhere in this issue we publish a portion of the program of the congress of surgeons which is to be held in Chicago during the week beginning November 10. We understand that about the same time there is to be the formal launching of "The American College of Surgeons" with the dignified induction into membership of those—or some of those—who have "come through" with the \$25.00. It is rumored, however, that a large number of those surgeons or near-surgeons who thought they were going to be permitted to use the magic letters after their names, will be disappointed; they will not be permitted to join the elect—who elect themselves!

DO NOT LET YOUR MEMBERSHIP LAPSE. TAKE OR WRITE YOUR TROUBLES TO THE SECRETARY, PHILIP MILLS JONES, 930 BUTLER BUILDING, SAN FRANCISCO.

ORIGINAL ARTICLES

VALUE OF PYELOGRAPHY FOR THE DIAGNOSIS OF HYDRONEPHROSIS.*

By MARTIN KROTOSZYNER, M. D., San Francisco.

The newer urological methods (cystoscopy, ureteral catheterization, the microscopic and functional examination of renal secretions, radiography, etc.), in connection with the clinical observation (history, subjective and objective symptoms, palpation, etc.) enable us, in the great majority of cases of unilateral renal lesions, to arrive at a definite diagnosis prior to a contemplated operation. In fact with sufficient experience in the application and interpretation of the various diagnostic methods it is, at present, only rarely necessary to resort to exploratory exposure of a diseased kidney as the last and only means of recognizing the character of its pathological lesion.

Instances of great and not rarely unsurmountable difficulties are, though, still comparatively frequent in the diagnosis of intermittent hydronephrosis, which, especially in the absence of a palpable tumor, often remains guesswork until revealed on the operating table by the autopsy in vivo. For this class of cases pyelography with a shadow-casting fluid frequently represents the only means which is apt to shed light upon the true character of the lesion. This is vividly demonstrated by the following observation:

Case 1. Past history: An Italian gardener of 41 (who was referred by Dr. M. Isnardi) had suffered during the last eight years from intermittent attacks of left-sided renal colic connected with frequent and painful micturition. At three different occasions hematuria had occurred during these attacks. All general and urinary symptoms were absent during intervals of attacks which of late had increased in frequency and intensity (severe colic, vomiting, marked prostration).

Present illness: Physical examination, palpation of kidneys, bloodcount. Wassermann test and X-Ray plates for calculi-shadows negative. Temperature and pulse-rate normal. Urine clear, showing a trace of albumen and microscopically a number of pus-cells and granular and hyaline casts; no tubercle-bacilli. Cystoscopy reveals in an otherwise normal bladder a slight congestion at the trigone. Ureteral catheterization had to be repeated several times since no urine could be obtained from the left renal catheter at the two first cystoscopic sittings, and finally gave the following results:

Right Kidney.
Transparency: Clear.
Reaction: Acid.
Albumen: None.
Urea: 1.7%.
Sugar reaction after phloridzin: Begins in 10 min.
Complete in 18 min.
Quantity of sugar: 1.5%.
Indigocarmin: In 6 min. deep blue.

Microscop.: Fresh blood cells.

Left Kidney.
Transparency: Clear.
Reaction: Acid.
Albumen: Trace.
Urea: 1.1%.
Sugar reaction after phloridzin: Begins in 28 min.
Complete in 38 min.
Quantity of sugar: 0.95%.
Indigocarmin: In 16 min. less deeply blue than on right side.
Microscop.: Granular and epithelial casts; degenerated small round epithelial cells.

Culture of left renal secretion sterile; guinea-pig test negative as regards tuberculosis. Filling of renal pelvis with fluid fails to elicit characteristic symptoms of colic.

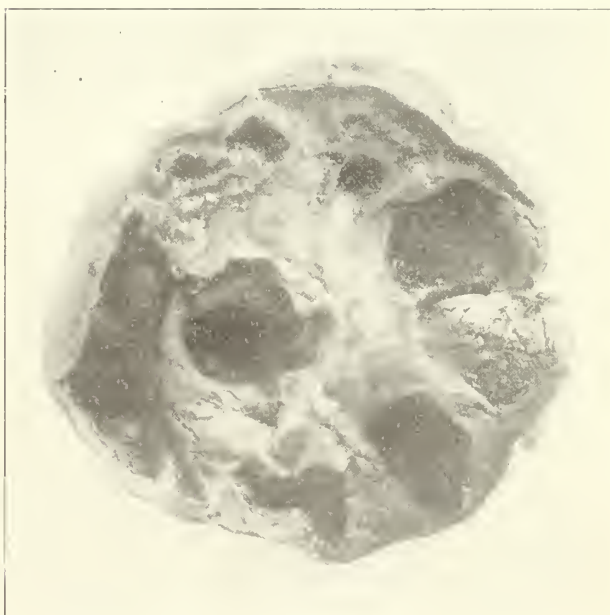
Pyelography is now done by means of injecting about 30 cc. of a 25% cagentos solution through

a large-calibred ureteral catheter into the left renal pelvis. Shadows of a greatly enlarged pelvis, dilated renal calices and one particularly large shadow (cavity) at the lower kidney-pole are visible on plate (Fig. 1).



For several days after the cagentos injection the patient voided dark-colored urine, which upon chemical examination, showed presence of silver and, microscopically, color pigments and a few leukocytes. Five days after the intrapelvic cagentos injection another radiographic exposure of the left kidney was done and a perfect cast of all renal cavities, into which the silver solution had permeated, is obtained on the plate.

Operation: As soon as all untoward symptoms, incidental to pyelography had abated, the left kidney is exposed by the usual lumbar incision and freed with difficulty from dense adhesions. One of these adhesions contains a large vessel crossing the ureter near the renal pelvis. Removal of kidney, which upon incision, presents a dilated pelvis and several cavities exactly corresponding in size and shape with the shadows of the pyelographic plate (Fig. 2).



* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

The patient makes a rapid and uneventful recovery.

Comment: As the most plausible interpretation of the subjective and objective symptoms presented in this case, prior to pyelography, a tentative diagnosis of left-sided nephritis was made.

Since the publications of Pousson, Rovsing and others, upon similar observations we know that intermittent attacks of colic and haematuria are frequent and characteristic symptoms in the course of an unilateral nephritis. The microscopic findings (many casts, comparatively few pus-cells) served to corroborate that diagnosis. On account of the comparatively slight deterioration of renal function on the diseased side a radical operative measure (nephrectomy) seemed to be contra-indicated, in fact, in the absence of more direct diagnostic evidence, a definite conclusion as regards the treatment (expectant or operative) could not be reached. At this juncture pyelography at once cleared up the situation the correct diagnosis could be read from the plate; the only rational treatment (nephrectomy) was now obvious.

Case 2. A carpenter (referred by Dr. Mansfeldt) had suffered from occasional attacks of left-sided lumbar colic during the last ten years; these attacks gradually increased in frequency and intensity and, of late, were followed by frequent and painful micturition.

Present illness: Pulse and temperature normal. General examination negative. Kidneys not palpable. Urine cloudy, containing abundant pus microscopically; bacteriological examination shows coli in almost pure culture, no tubercle-bacilli. Cystoscopy reveals the picture of a marked chronic cystitis; the trigone is so intensely injected that the recognition and catheterization of the ureteral orifices proves to be a difficult task, which is only feasible after several futile attempts. Finally both ureters are catheterized to the pelvis. The right-sided renal secretion is clear and does not contain microscopical abnormal constituents, while the urine of the left side is cloudy and shows, microscopically, pus in abundance. Phenoloulphone-phthaleine appearance is delayed and the various functional tests (phloridzin, urea, etc.) show a moderate deterioration of function on the left side. Radiography negative for calculi-shadows. Pyelography, made in the usual manner, demonstrates besides a dilated pelvis a number of larger and smaller cavities of the left kidney indicating an advanced stage of destruction of that organ.

Operation: The left kidney is exposed and removed in the usual manner. The removed specimen shows upon section a number of cavities and a dilated pelvis, which exactly corresponds in size and shape with the shadows on the pyelogram.

Sections, according to the pathological report, show in region of dilated pelvis much granulation and cicatricial tissue. The superficial layers of the granulation tissue are extensively necrotic in places. No tubercles found. In parts the cortex is much shrunken and fibrous.

The patient makes a rapid and uneventful recovery.

Comment: In this case the diagnosis of a left-sided pyonephrosis as a sequel to a probably congenital hydronephrosis could fairly well be established by the ordinary urological methods. Nevertheless, the character and extension of the destructive process in the diseased organ could only be ascertained through the study of the pyelographic

plate and, obviously, led to the logical and correct operative procedure. Thus the undue prolongation of the operation and the loss of blood invariably connected with nephrotomy were avoided, while the quickly performed nephrectomy resulted in a rapid and uncomplicated recovery.

If, though, in these cases, pyelographic evidence led to the performance of radical operations, it, on the other hand, was instrumental in preventing operative interference in the third observation.

Case 3. Past history: A farmer of 26, who was referred by Dr. E. Schmoll, had, about twelve years ago, fallen backwards from his wagon without immediate or remote untoward symptoms, except an occasional backache. Since the last eight months he suffered from intermittent attacks of left-sided renal colic connected with frequent and painful micturition. These attacks gradually increased in intensity and frequency.

Present illness: Physical examination including palpation of kidneys negative. X-Ray plates, made at two separate sittings, and, in both instances, by trained radiographers, negative for calculi shadows. Urine contains pus and blood, microscopically, no tubercle-bacilli. Cystoscopy shows marked trigonitis (cystitis coli) which renders the detection and catheterization of ureteral orifices a difficult procedure. At the first sitting only the left ureter is entered, the catheter reaching the renal pelvis without impediment; microscopical examination of the left-sided renal secretion shows pus and blood. At succeeding sittings only the right ureter can be catheterized, while the secretion of the left kidney has to be obtained through a bladder-catheter for comparative functional tests and microscopical examination. These demonstrate a marked deterioration of function on left side and normal functional and microscopical findings on right side.

A tentative diagnosis of a left-sided hydro-nephrosis is made and the patient returns to his farm for a few weeks to arrange important business prior to operation. Upon his return to the hospital the patient eliminates, in micturating, a small rough-edged calculus (urate) of the size and shape of a bean.

Examination of renal secretions, after bilateral ureteral catheterization, still points to a functional and anatomical deterioration of the left kidney. Pyelography though, which now is feasible, demonstrates a normal renal pelvis and calices except a slight dilatation of the lowest one. Upon these findings the patient is advised to return home without operative interference for the present.

Comment: The failure of skiagraphy to demonstrate, in this case, the small urate concrement on the plate, corroborates the guarded opinion of experienced radiographers as regards the absolute diagnostic reliability of negative stone-plates. If pyelography would have been feasible, prior to elimination of the calculus, it might have materially aided in the correct interpretation of the case, by demonstrating changes in the caliber of the ureter (dilatation above calculus) which Braasch¹ in his extensive pyelographic work on ureter-concrements has observed in more than two-thirds of his cases. But even after expulsion of the calculus, no answer was found to the patient's question, whether all untoward symptoms would from now on cease, so that he could return to his distant home and his arduous occupation without submitting to the operation, for the performance of which he had re-entered the hospital. As in the first

case the correct answer could be read from the pyelogram.

My work with pyelography was not satisfactory until I began to use shadow-casting solutions of comparatively high concentration. Really good and, for diagnostic purposes, useful plates were obtained, since I, following the suggestions of Uhle and his associates² began to experiment with cargentos (colloidal silver oxide).

All that should be expected from a pyelographic plate can be accomplished with a 25% cargentos solution. Lower concentrations do not give shadows of sufficient density. I do not share Uhle's³ opinion regarding the harmlessness of the silver-salt up to concentrations of 50% although the statement is ventured that no serious or permanent irritation or injury of kidney-tissue will follow a skilfully performed pyelographic injection. I prefer to inject, with the patient in a moderate Trendelenburg position, in order to permit the shadow-casting fluid to gravitate into all renal cavities, and after a little while, to remove the patient to the X-ray room, where radiography is done, while the injection is continued under gentle pressure. The quantity of the injected fluid is variable. In the first case reported in this communication, at least an ounce must have reached the renal pelvis without causing any appreciable untoward symptoms. As a rule, though, a smaller amount of 8 to 15 cc. will suffice.

CONCLUSIONS:

1. The diagnosis of hydronephrosis is materially aided and, in some instances, only feasible by pyelography.

2. It offers a valuable guide to the method of treatment or operative procedure to be followed in a given case.

3. This method should be applied only on the basis of strict indications and by a skilled operator.

1. J. Am. Med. Ass'n, Dec., 1911.
2. Ann. of Surgery., April, 1910.
3. *l. c.*

EXOPHTHALMIC GOITER: INDICATIONS AND CONTRAINDICATIONS TO OPERATION.*

By EDWIN H. SCHNEIDER, M. D., Los Angeles.

The following statements are based upon the observation of about 300 cases of exophthalmic goiters examined the past two years while clinical and surgical assistant to the Mayo Clinic at Rochester, Minn.

Exophthalmic goiter, Grave's disease, Basedow's disease, or hyperthyroidism is now generally regarded to be due to an over secretion of the thyroid gland.

Pathological examination of thyroid tissue removed from cases with clinical symptoms of hyperthyroidism always shows a hyperplasia, *i. e.*, too many secreting cells.

Methods used to diminish the amount of secretion as by reducing the blood supply of the gland and by removing the excess of cells have given

such prompt relief that there remains but little room for doubt that the symptoms are not produced by an overworked gland.

Feeding of thyroid extract in excess to a healthy individual if sufficiently prolonged may produce all the symptoms of exophthalmic goiter.

The etiology of this over secretion is not so clear; infection, shock, heredity and a disturbance in the metabolism of the thyroid gland are the principal factors which are being considered. The fact that acute tonsillitis is exceptionally frequent just before and during an attack is strengthening the infectious theory.

Well developed cases of hyperthyroidism can be diagnosed at a glance but other cases require repeated examinations. A change in temperament and a pulse of 90 to 100 beats per minute may be the only symptoms present in the early stage.

The symptoms in the order of their usual onset and frequency are mental irritability, rapid heart action, vasomotor disturbances, tremor, muscular weakness, loss in weight, exophthalmus, diarrhea and vomiting.

The onset of symptoms may be sudden, gradual, or irregular.

An attack may abort, terminate fatally in a few weeks, or progressively become worse with slight intermissions to end in death in a few years—from secondary complications. H. S. Plummer has demonstrated that exophthalmic goiter runs a fairly typical course, reaching the maximal height of intoxication during the latter half of the first year and then rapidly subsiding to the twelfth month. The symptoms may entirely disappear in the next six months or what is more frequent continue as exacerbations for two to four years. Other attacks with distinct intermissions are also common.

A disease of such a protean character, to be treated intelligently, requires a careful study and a judgment based upon a great number of cases.

Operation has been proven to be the method of choice in treating exophthalmic goiter as it produces the quickest, safest and most permanent results. Seventy-five per cent of operated cases are rapidly cured; the other 25 per cent include patients who still complain of a few symptoms of hyperthyroidism and therefore require further operation, and cases whose symptoms are those of secondary changes in the heart, liver and kidneys.

The surgical mortality is one-half to five per cent, depending entirely upon the experience of the operator.

The medical mortality is 10 to 25 per cent. within five years.

Graves disease may occur in early childhood or in late adult life. In 200 cases the average age of onset of symptoms was the 32nd year. It is about three times as frequent in the female as in the male.

A mild grade and transient hyperthyroidism may occur during puberty, probably as a result of a generally increased functional activity. These cases as a rule do not require surgical interference and soon subside with or without medical treatment.

Every case of hyperthyroidism of mild or mod-

* Read before the Forty-Third Annual Meeting of the State Society, Oakland, April, 1913.

erate degree in which the symptoms have continued for several weeks with the same or increased intensity, in spite of complete rest in bed with medical treatment, should be regarded as surgical. Severe and remittent forms are always surgical. The question is, when is the safest time to operate?

The important contra indications to operation are marked mental irritability, rapid loss in weight, great muscular weakness, dilatation of the heart exceeding one inch, diarrhea, vomiting and edema.

Mental irritability is usually the earliest symptom and is manifested by irritableness, restlessness, emotionableness, insomnia, and rarely as maniac depressive insanity. These nervous symptoms are very important indices as to the intensity of the intoxication in the stage when the heart is not yet, although often upon the very verge of dilatation, and there is no diarrhea or vomiting. A careful attention to this symptom will therefore enable the surgeon to avoid operating during a time in which the mortality is practically as high as in the latter stages when the other symptoms are manifested.

Rapid loss in weight and great muscular weakness indicate a profound toxemia and mark the periods of maximal intoxication.

About 80 per cent. of exophthalmic goiters coming to operation have dilated hearts. A dilated heart during the latter half of an acute attack is of more concern than the heart which has remained dilated from a previous intoxication. Again, during the stage of maximal intoxication the heart dullness is quite deceiving, as it varies greatly in size from day to day. Such a fluctuating heart is a bad risk and should be treated by rest in bed until it no longer varies in size.

Diarrhea and vomiting are always indices of marked intoxication and contra indicate surgical interference.

Edema and anasarca are usually secondary to cardiac insufficiency and require medical treatment until the heart has regained its compensation.

In preparing exophthalmic goiter patients for operation the treatment is principally symptomatic and the physician should always consider whether the case as a whole is improving. Otherwise he is apt to be misled by the improvement of one symptom only to be followed by another condition of more concern, and therefore increase the danger of operation. It is rare that any case of hyperthyroidism requires medical treatment over a period of time longer than six weeks before an operation can be performed.

It is to be remembered that the primary object in treating this disease is to diminish or stop the intoxication as soon as possible, and as surgery is the quickest means of doing this, it is to be applied the moment it is comparatively safe to do so.

The symptoms arising from secondary degeneration of the heart, liver, and kidneys from the prolonged intoxication, may be worse than the disease itself and this fact should be constantly kept in mind by the physician who postpones operation until permanent damage to these organs has occurred.

The fact that the hyperthyroidism is decreasing

during the administration of one or more of the 237 varieties of drugs already used for the treatment of this disease should be regarded as probably due to the natural course of the disease and not due to the action of the medicine.

X-ray, sera, suggestion, change of climate and drugs are to be regarded as palliative methods to be used in tiding the patient over an acute attack preparatory to operation. Complete rest in bed with hygienic surroundings, a well selected diet and symptomatic treatment will relieve all symptoms as quickly and with less harm than will any other form of non-surgical treatment. The indiscriminate use of drugs in this disease can not be too strongly deprecated, not only because of the time consumed in trying them out, but also because they may hasten the degenerative changes.

Operation in the severe forms is divided into three stages; a ligation of the left superior thyroid vessels, a ligation of the right superior thyroid vessels, and an extirpation of the right lobe and isthmus. A ligation of the left upper pole is the least that can be done and therefore has the lowest mortality.

The reaction following this operation gives the surgeon an index as to whether or not the patient can withstand a resection of the gland. If the reaction is severe a ligation of the right side is performed in about one week. If there is little reaction, an extirpation of the right lobe, isthmus and possibly part of the left lobe is done in place of the secondary ligation.

The average gain in weight after a double ligation in those who have lost in weight is 22 pounds in four months. There is also a rapid subsidence of all the symptoms and beyond a degree which could be accounted for by merely rest in bed and suggestion.

The circulation re-establishes itself in about three months, so it is necessary to do an extirpation at this time to effect a cure. An extirpation following a double ligation will then have only such a mortality as results from degenerative changes.

Early mild cases of exophthalmic goiter may be permanently cured by a double ligation. Some of these may be abortive cases, so too much credit for their cure is to be given neither to surgery nor to medicine.

A few cases of Grave's disease that have had an extirpation of the right lobe and isthmus will have a relapse within a few years and require for a cure a ligation of the left superior pole or a removal of part of the left lobe. It is impossible to determine which cases will require this second extirpation, as the intensity of the intoxication is not a sufficient index as to how much of the gland should be removed.

Old cases of exophthalmic goiter in which the symptoms are from secondary degenerations rather than from hyperthyroidism, receive but little benefit from an extirpation. The thyroid gland in these cases is large, but consists principally of atrophic cells and colloid material; so a removal of the usual amount of tissue may produce a deficiency in secreting cells, i. e., hypothyroidism or myxedema.

Exophthalmic goiter patients operated upon for other surgical conditions are practically as apt to die from acute hyperthyroidism following the operation as if the thyroid gland itself had been extirpated. It is therefore advisable to treat the hyperthyroidism first whenever possible.

Patients with simple goiters who develop hyperthyroidism are to be regarded as exophthalmic goiter superimposed upon simple goiter.

An intoxication occurs in about 25 per cent. of simple goiters which produces increased heart action, nervousness, sweating and a rapid degeneration of the heart, liver and kidneys. Some physicians regard this as exophthalmic goiter occurring upon simple goiter, others as due to an intoxication arising from a degeneration within the simple goiter, an altered metabolism or from increased absorption of normal secretion due to pressure upon the surrounding "normal thyroid" tissue.

Clinically these cases are not exophthalmic goiter, as no exophthalmus develops, the symptoms are less marked, not as complex and the entire course is not like that of Grave's disease.

Clinically and pathologically exophthalmic goiter is an entity. Doubtful cases are usually not Grave's disease.

References.

- C. H. Mayo: "Jour. Amer. Med. Assoc.," 1912, Vol. LIX.
 L. B. Wilson: "Amer. Jour. Med. Sc.," Dec., 1908; "N. W. Med.," Jan., 1913.
 Th. Koerner: "Archiv fur Klinische Chirurgie," 1911, Band 96.
 S. P. Beebe: "N. Y. Jour. Med.," Sept., 1912.
 W. Fuller: "Surg. Gyn. Obs.," Nov., 1912.
 D. Marine: "Jour. Amer. Med. Assoc.," Aug. 3, 1912.
 J. H. Jacobson: "Annals of Surg.," Mar., 1913.

Discussion.

C. P. Thomas, M. D., Los Angeles: Dr. Schneider has described very accurately the indications and contra-indications for the operative care of this most distressing condition which is now generally known as hyperthyroidia. Many of the mild cases especially in young girls will recover under rest and the belladonna treatment, while the far advanced ones will seldom do so. This latter group will have a large operative death rate, and require the best sort of judgment as to when to operate, and just how much to do in each case.

The rules he advises, regarding the extent of the nervousness and dilatation of the heart, acuteness of the same, etc., are most valuable ones. I have observed that most cases operated, in which the pulse rate has remained above one hundred and twenty beats per minute for any considerable length of time, die if the complete operation is undertaken. If the pulse rate remains above one hundred and forty in spite of rest and good medical care, even the mere ligation of either artery, cutting the nerve supply, or any kind of an operation may prove fatal. Diarrhea is another danger sign in the disease and patients suffering from it stand operative treatment badly.

A colloid cystic or large simple goiter should be removed, even though the symptoms of hyperthyroidia were very mild, because of their well-known tendency to become malignant. It should be remembered that the radical operation for this disease should not be undertaken by any one who is not thoroughly familiar with all of its details and skilled in the best methods of hemostasis. The loss of blood whether at the operation or following it, even in moderate quantities, is often the cause of death.

Haste is an important element in this operation, but it must not be at the expense of careful work; it might be well to say that the time at which surgery was indicated in a given case, would depend largely upon the particular surgeon doing it, as well as the condition of the patient to be operated.

Dr. E. C. Moore, Los Angeles: I would like to emphasize one point that Dr. Schneider did not dwell upon sufficiently, and that is operating cases of hyperthyroidism associated with other surgical conditions. In the last year I have operated two cases, both of whom died. The first, a fibroid with mild hyperthyroidism. The other, an enormous fibroid with questionable colloid goitre. The first case died at the end of twenty-four hours with marked hyperthyroidism. The second died on the fourth day with the same symptoms. If hyperthyroidism is present and there is also an abdominal condition requiring surgery, a ligation of both superior thyroid arteries should be done at a preliminary operation, the result of this being a cutting down of the blood supply to the gland and thus curtailing to some degree the secretion from the gland and the toxemia which sometimes overwhelms those cases. It is well known that surgery on other portions of the body frequently produces an acute attack of hyperthyroidism and death.

Dr. W. I. Terry, San Francisco: It seems to me that the psychology of these patients should be carefully studied. Patients treated from the psychological standpoint as well as the medical are often brought to a state when they may be operated on safely. Dr. Schneider has brought out most of these things, but I do not think he has laid sufficient stress on the influence of the emotions in those forms of exophthalmic goitre requiring operation.

I think the kind of anesthetic used is very important. There are no anesthetics that are quite so safe, to my mind, as gas and oxygen or local anesthesia, or preferably a combination of the two.

In the matter of complications, Dr. Schneider did not mention the thymus gland. Some of these cases of enlarged thymus cannot be told by physical examination beforehand, and I have had two of them die where the thymus overlaid the heart and could not be made out by physical examination.

Dr. H. C. Brainerd, Los Angeles: The discussion seems to have come entirely from the surgical aspect. I would call attention to the psychic element in these cases; in a large proportion of these cases there is a sexual disturbance as well. The cases cannot always be divided into simple thyroid and exophthalmic. Simple thyroid may become active and may have all the symptoms of hyperthyroidism in cases showing no glandular enlargement. I have seen a lot of cases of exophthalmic goitre with all the symptoms of Graves' disease get well by medical treatment; and I have seen cases of removal of the gland by our most eminent surgeons which did not get well.

There is a disturbance of the sympathetic nervous system in these cases. You notice the large preponderance of women, and of these nine-tenths have some genital disturbance.

Dr. E. H. Schneider, closing discussion: I have seen eighteen deaths follow operation upon the thyroid gland. In all cases death was due to hyperthyroidism with its complications or suffocation from hemorrhage at the site of operation. Some of these cases had an enlargement of the thymus, but I believe that it was merely a coincidence and that deaths attributed to an enlargement of the thymus gland are due to unrecognized hemorrhages.

CLINICAL METHODS OF ESTIMATING THE DEGREE OF ACIDOSIS IN DIABETES.*

By T. ADDIS, M. D., M. R. C. P., San Francisco.
(From the Laboratory of Medicine, Stanford University.)

What are the possible ways by which the general practitioner, who has not much time at his disposal, may follow from day to day the progress of his diabetic patients as regards the condition which is termed acidosis?

First let us consider the most direct method, the estimation of the amount of acetone bodies excreted in the urine.

No one of the methods used can lay claim to absolute quantitative accuracy. This is especially true of oxybutyric acid. The method of Magnus Levy—Lind's apparatus for the preliminary extraction considerable shortens the time required for the application of this method—which is generally admitted to be the best, requires an expensive and complicated apparatus and much time, skill and experience. As regards the acetone, a variable and incalculable amount is lost in the breath. Even if these methods did give accurate results, they could not be accepted as an absolute criterion of the clinical condition of the patient. For in the first place, no fixed relationship can be established between the acetone bodies in the urine and the resulting dangers to the patient. Some diabetics without any symptoms will for months at a time excrete quantities of oxybutyric acid which are as large as those found in other cases in whom the severest symptoms of acidosis are present. Even in the same individual the resistance to the toxic action of these substances appears to vary considerably. And finally, it must always be remembered that the amount of acetone bodies in the urine is no certain guide to the quantity present in the body. It is not the amount in the urine but that part which is present in the tissues which is doing the damage, and in many cases it appears as if the onset of diabetic coma was due not so much to a sudden over-production of acetone bodies, as to a failure to get rid of them. Everyone has seen how the giving of alkali will increase the excretion of acetone bodies and will help to remove considerable amounts which would otherwise be retained, so that excretion does not by any means always tally with production.

In view of these facts and of the technical difficulties of the quantitative methods, there is obviously great need for some simple readily applied method whereby an approximate idea can be obtained as to the amount of acetone bodies, for in spite of the difficulties in the interpretation of the results, the determination of the quantity of these substances remains one of the best methods at our disposal in judging the degree of acidosis present.

Such a method has been introduced by Hart.¹ It depends on the quantitative relationship which exists between oxybutyric acid and diacetic acid. Since diacetic acid is simply an oxidation product of oxybutyric acid, an increase in oxybutyric acid

is usually associated with an increase in diacetic acid. When oxybutyric acid is given to a diabetic, the amount of diacetic acid rises. In any severe acidosis, the amount of acetone is negligible compared with the quantity of the other two bodies, in mild acidosis only small amounts of diacetic acid and some acetone are present, and in the mildest of all, acetone alone is found. Of the three acetone bodies, diacetic acid is the only one of which a rapid approximate determination can be made, and from this in most cases, a fairly accurate idea of the total amount of the three bodies present can be obtained. The method is a colorimetric one. The depth of the red color produced by ferric chloride in a solution of ethyl-acetoacetate of known strength is compared with the color produced in the urine. We have found that the reading may be very accurately and rapidly made by using the colorimeter recommended by Rowntree and Gerahty for use with the phenolsulphonephthalein test. But the reading may also be made simply by diluting the urine in a graduate until the standard color is attained.

Another test for diacetic acid has been lately given by v. Onderjowich² which can also be adapted for use as a rough quantitative method. Methylene blue is decolorized by iodine, but if diacetic acid is present in the urine the dye is protected because the iodine is all taken up by the diacetic acid with which it forms a colorless addition product. The amount of iodine required to decolorize the methylene blue depends on the quantity of diacetic acid present.

Both these methods take only a few minutes. We have made a large number of observations with them and find that in cases of moderate acidosis, such as are seen for instance when a strict carbohydrate-free diet is instituted, they appear to give a fairly accurate idea of the grade of acidosis as far as can be judged from the fact that they follow the variations of ammonia excretion. But in a case of diabetic coma the relationship seemed to fail, for the quantity of oxybutyric acid present was much larger than the total acetone bodies as given by these methods. The quantitative estimations made by Hart with Schaffer's method gave results which agreed quite closely with the readings made with his own method, but *they* were cases of moderate acidosis and it is certain that such a close correspondence would not have been found at least in all cases of severe acidosis. In the last resort, we know that diabetic acidosis is due to a failure to oxidize fatty acids and it appears that in the last stages of some cases of severe acidosis this failure in oxidation may go so far as to bring about a complete absence of the conversion of oxybutyric acid to diacetic acid. Stadelmann reported three cases of typical diabetic coma in whose urine he was able to show the presence of large amounts of oxybutyric acid and yet was unable to obtain a positive reaction for diacetic acid. And when Magnus Levy's figures³ of the amounts of acetone plus diacetic acid are compared with the quantities of oxybutyric acid found in cases of diabetic coma, it is seen that there is absolutely no

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relationship between them whatever. Here, therefore, these methods may fail us and it must always be remembered that the diagnosis of a condition of coma due to acidosis cannot be excluded because of the presence of only a small amount of diacetic acid. However they are, because of their simplicity and especially when taken in conjunction with other estimations, extremely useful clinical methods.

The other means we possess of determining the degree of acidosis are all indirect and are based on a measurement of the effects of the acids on the factors concerned in the maintenance of the neutrality equilibrium of the body. So long as life continues, no appreciable variation from neutrality ever occurs. Such an alteration in reaction is incomparable with the physical conditions and ferment actions essential to the extraordinarily complex interrelated chemical reactions on which life depends. This constant state of neutrality, in spite of the production of very large amounts of acid in the body, depends on two main factors, the capacity to excrete more acid than basic radicles, and the power of neutralization which the tissues and fluids of the body possess.

The excretion of acid in excess of base takes place through two main channels, the kidneys and the lungs. The loss of carbon dioxide in the breath is a purely acid excretion. The urine in cases of acidosis has an acid reaction though the blood from which it is secreted is neutral. The kidneys, therefore, in some way or other, remove an acid from a neutral fluid. In cases of marked acidosis one might expect to find a very high degree of acidity in the urine. We worked this point out in a series of cases but were unable to find any close correspondence between the degree of acidity of the urine and the grade of acidosis as judged by other methods. With the development of acidosis, there was indeed in general a moderate increase in acidity, but even in cases of diabetic coma, the change was not pronounced. There appears to be a very definite limitation of the power of the kidneys to excrete acids. These results were obtained with Folin's method,⁴ and at the same time a parallel series of estimations were made by the method of Adler and Blake.⁵ They use a standard mixture of acid and basic phosphates of the same H ion concentration as the blood. With resolic acid this gives a certain tint of yellow. The urine after removal of calcium and dilution is titrated with sodium hydrate until the same color is produced. This is an indirect method of expressing the difference in the H ion concentration of the blood and of the urine, and shows the amount of acid in excess of basic radicles which have been excreted by the kidneys. The results of this method were found to run parallel with those of Folin's. The increase in acidity was not proportional to increase in the grade of acidosis as judged by the ammonia output, and the conclusion must be drawn that variations in the acidity of the urine do not furnish any sure guide as to the degree of acidosis. Direct estimations of the H ion concentration of the urine would give the same

result. V. Shramlik has shown that if the calcium is removed from the urine as in Folin's method, the curves by the two methods vary together.

With regard to the excretions of carbon dioxide, the other means which the body takes of ridding itself of acid, the outlook is more promising. What little work has so far been done goes to show that this may turn out to be one of the most accurate methods. The carbon dioxide in the breath is proportional to that in the blood, and the method has in this the great advantage that it is not influenced by variations in excretion as are all urinary estimations. It appears that with increasing acidosis the alkali available for the transport of carbon dioxide as sodium bicarbonate diminishes, and the excretion of carbon dioxide falls, so that this factor in maintaining neutrality fails altogether. Staub,⁶ in an extensive series of estimations which have been recently published, found that there was not always any parallelism between an increase of the amount of acetone bodies in the urine and decrease of carbon dioxide in the breath. He concludes that the carbon dioxide method is the safer guide since it shows the amount retained rather than the amount excreted. Still it is not yet by any means certain that the diminution of CO₂ which undoubtedly occurs in advanced acidosis is due to a diminution of the alkali available for the absorption of CO₂ for Beddard, Pembrey and Spriggs found that the blood of patients which showed a low carbon dioxide content was capable in vitro of taking up the normal quantity. And if the theoretical foundation of the method is insecure, it is also true that the practical application has clinical limitations, for it requires some practice and skill and the intelligent co-operation of the patient.

Another series of methods is based on the other main factor in preventing any change of reaction in the body, the power of neutralization. This power depends on the property possessed by mixtures of acid and basic phosphates, of sodium bicarbonate and carbon dioxide and of most proteins, of preventing the setting free of H ions in a solution. This function is performed so well that, as Benedict⁸ has shown, even in cases of extreme acidosis there is scarcely any appreciable increase in the H ion concentration of the blood and in some cases none at all.

Nevertheless, there are limitations to this capacity for neutralization for when much acid is excreted a considerable amount of fixed alkali goes with it and if there were no other source of alkali, the body would become depleted of its sodium, potassium and magnesium. It is here that another factor comes into play, the potential neutralizing power of ammonia. Under normal conditions all but a small part of the ammonia unites with carbon dioxide and is synthesised to urea. But in the presence of free acids, the ammonia neutralizes them and they are excreted as ammonium salts in the urine. An increase in the ammonia of the urine may therefore be taken as an indication of an inability of the body to cope with the neutralization of acids in the ordinary

way, for it is a reserve store of alkali called into action only as need requires. Ammonia estimations are the best clinical means we have at present of gauging the degree of acidosis. Several simple clinical methods have been recommended, but they are not very accurate and Folin's method of making the urine strongly alkaline and carrying the ammonia over into a known quantity of acid by means of an air current is so simple and at the same time so exact that it is much the best method to use. Of course, the ammonia fails to give any help at all in those cases where alkali has already been given as medication, for the diminution in ammonia bears no definite relation to the amount of alkali given. This is probably because in severe acidosis the tissues become depleted of alkali and when it is given they absorb and hold it. Indeed, this capacity to retain alkali has been recommended by Sellards⁹ as a rough way of determining the degree of acidosis, and in some cases this may be of practical value. He gives increasing doses of alkali until the urine becomes alkaline. Blum¹⁰ states that if the urine can be kept alkaline with 50 grams of sodium bicarbonate a day, there is no immediate danger of diabetic coma.

The main defect of ammonia as a gauge of acidosis, however, lies in the fact that it is only one of the neutralizing substances, and it is found that the part played by the fixed alkalies in neutralizing oxybutyric acid even in marked acidosis may be considerable and is also very variable. So that a fall in ammonia on one day may be due to an increase in the fixed alkali while an increase on another day may be due to a decrease in fixed alkali. This may be seen on examining Stadelmann's¹¹ figures who made determination of all basic radicles in the urine. Such estimations are, of course, quite impossible in routine work.

Adler and Blake⁵ have advanced the idea of what they term the fixed alkali retention of the body as a guide. The ammonia is a means whereby the fixed alkali of the body is spared. The difference between the acidity of the urine and of the blood also represents so much alkali saved to the body. By adding the two together, they believe a better idea is gained of the strain put on the factors concerned in maintaining neutrality. The results we obtained with this method showed variations corresponding with the other evidences of acidosis, but the concordance was due almost entirely to the ammonia, so that the method does not appear to have much advantage over the ammonia estimations alone.

In conclusion, I should like to mention one other method¹² which is extremely simple and may sometimes prove of use in the diagnosis of diabetic coma. A drop of the patient's serum is applied to some filter paper soaked in resolic acid. A red color is produced. If, however, there is a even slight increase in H ion concentration of the serum, a brownish color results. We tried this on about forty sera and always found the same reaction. The only case in which a positive reaction was obtained was a case of typical diabetic coma. A case of bronzed diabetes, who was admitted in a

comatose condition, did not give a positive reaction and a study of the ammonia excretion led to the conclusion that the coma in this case was not due to acidosis. In view of the dangers associated with the intravenous injection of large amounts of alkali, it is very necessary to be sure that any case of diabetes seen in an unconscious condition is one of true diabetic coma before instituting treatment of this description.

To sum up then, while we have to admit that at the present time we have no sure and certain guide in any of the methods I have mentioned, yet in dealing with any particular case, we shall by a combination of these methods and by a close study of the clinical condition, be able to gather sufficient indication of the development of a dangerous degree of acidosis to enable us to commence energetic treatment before it is too late.

References:

1. Hart, Amer. Jour. Med. Sciences, 1906, 132, p. 220; Arch. Intern. Med., 1908, 1, p. 218; Arch. Intern. Med., 1911, vii, p. 367; Quart. Journ. of Med., 1912, v, p. 419.
2. V. Onderjovich, Deut. Med. Woch., 1912, xxxviii, p. 1413.
3. Magnus Levy, Arch. of enp. Path. u. Pharm., 1899, xlii, p. 149.
4. Folin, Amer. Jour. of Physiol., 1905, xliii, p. 45.
5. Adler & Blake, Arch. of Int. Med., 1911, vii, p. 479.
6. Staub, Deut. Arch. Klin. Med., 1913, cix, p. 268.
7. Beddard, Pembrey and Spriggs, Journ. of Physiology, 1908, xxxvii; Proc. Phys. Soc., p. xxxix.
8. Benedict, Arch. f. d. Ges Physiologie, 1906, cxv, p. 106.
9. Sellards, Johns Hopkins Hosp. Bull., 1912.
10. Blum, Sem. Med., 1911, 13th Sept.
11. Stadelmann, Arch. f. enper. Path. u. Pharm., 1883, xvii, 419.
12. Adler, Amer. Journ. of Physiol., 1907, xix, p. 1.

Discussion.

Dr. R. L. Wilbur, San Francisco: Diabetic coma is such a startling condition and its prognosis is usually so hopeless, that if we can protect our diabetic patients by one means or another from the culminating feature of acidosis, it is most desirable to do so, and we should make use of any known method that is of value in watching the progress of our patients. I think that Dr. Addis has said that the estimation of ammonia is one of the most valuable methods of giving us an understanding of the real situation and of the strain placed upon the body in overcoming the abnormal amounts of acids formed. Folin's method is comparatively simple. It is worthy of note that Dr. Addis' observations indicate that tests for diacetic acid are not always reliable guides as to the amount of acidosis. The great disappointment we frequently meet in the alkaline treatment of severe acidosis shows that we must begin alkaline and diatetic treatment early. I have been much disappointed with the intravenous administration of carbonate of soda solutions in diabetic coma and am impressed with the fact that other factors than that of acidosis are present, particularly evident seems to be the marked disturbance of the hepatic function. It is also probable, judging from experiments on rabbits, performed by me some years ago, that the neutral salts of oxybutyric acid, after neutralization, are likewise toxic.

It is only by such careful clinical studies as these of Dr. Addis that one can obtain a clear conception of what goes on in the metabolism of the diabetic, and until we are able to gather together a large amount of data along this line it will be impossible for us to handle these abnormal conditions in a satisfactory manner from the therapeutic standpoint.

EARLY SYMPTOMS OF POLIOMYELITIS WITH SPECIAL REFERENCE TO A NEW PREPARALYTIC SYMPTOM.*

By JOHN ADAMS COLLIVER, A. B., M. D., Los Angeles.

We have just emerged from an epidemic of "Infantile Paralysis," practically the first, at least the largest, we have experienced in Southern California. History shows that epidemics have been spreading in the line of travel and it finally came our turn. With our enormous immigration it is a wonder we have escaped so long and the chances are we shall have another next year. In anticipation of this let us be ready by studying well our own situation, according to each man's experience, as each epidemic differs somewhat from the others.

The most difficult and interesting part of the practice of medicine is the early diagnosis of our cases. The most satisfactory part to the patient is to be cured or to be given a correct prognosis. The earlier we can diagnose our cases the greater the hope of cure and the better our prognosis. In the recent epidemic we all noticed many interesting cases and running through these was a chain of classic symptoms. In addition to these there were other symptoms which seemed to be characteristic of the preparalytic stage. I will deal largely with this preparalytic stage and lay especial stress on the symptoms which have not heretofore been emphasized or reported, and cite cases illustrating the different varieties of the disease.

Infantile Paralysis a Misnomer.—In order to get a better understanding of the subject let us review our teachings of infantile paralysis. Our knowledge of the disease has been rapidly undergoing a change. Not long ago the diagnosis of the disease was based wholly on the paralysis. Osler in 1900 said, "Child after slight indisposition and fever is noticed to have lost use of a limb." Holt about the same time said, "No diagnosis can be made until the paralysis takes place." Up to five or six years ago to report a case of paralysis with recovery was looked upon with about as much doubt as recovery in tuberculous-meningitis. A few years ago to have reported a case that never had paralysis would have been looked upon with as much doubt as to have reported a case of an adult having had infantile paralysis. This disease which for years was thought to be characteristic of infancy has to-day, as we all know, many victims among adults. It is also a common observation now to have perfect use of the muscular system throughout the attack. Therefore inasmuch as the disease is neither infantile nor paralytic the name infantile paralysis is a misnomer. The term "anterior poliomyelitis" has likewise been found incomplete.

Anterior Poliomyelitis Not Characteristic of the Disease.—As a close study of the numerous phases of the disease has shown that instead of the involvement being confined to the spinal cord and the anterior horn portion at that, we may have

the posterior horn as well as any other part or whole of the cerebro-spinal system attacked. The involvement of the posterior portion is shown in two ways, first, by early symptoms of hyperesthesia of the skin, and second, by the loss of sensation in certain localities. The involvement is not confined to the cord as was first brought out in 1905 by Medin and emphasized last year by Koplik in his articles on the cerebral forms of poliomyelitis. Thus we have instead of local involvement of the cord, symptoms of involvement of the whole cerebro-spinal system.

Not a Nervous but an Infectious Disease.—Up to a year or so ago infantile paralysis was considered and classified as a nervous disease. This view or theory was first upset by Landsteiner and Popper, who, in 1909, inoculated successfully a monkey from the spinal cord of a child dead of poliomyelitis. They thus demonstrated positively that it was an infectious disease. Later Flexner, Lewis, Osgood and others showed that the virus affected not only all parts of the nervous system but the lymphatic and vascular systems and the parenchyma of various organs. Thus "infantile paralysis" is not strictly an infantile disease, or a paralytic disease, and lastly not a nervous disease. It is an infectious disease.

The name of the disease may be changed some day but the symptoms of the disease will always be referred to the nervous system. Thus the diagnosis will be largely based upon symptoms originating from the pathological changes in the cerebro-spinal system.

Varieties of the Disease.—The various kinds of poliomyelitis will best be separated by considering their relation to the divisions of the cerebro-spinal system, which are, as we all know, the cerebral, bulbar or spinal. The bulbar includes the cerebellum or ataxic variety, and is further subdivided into superior and inferior types. The spinal includes the Landry's type. In addition we have the abortive type, which may simulate any one or all of the above. Another class will be reported which is neither abortive nor corresponding to any one of the above types.

Wickman's classification is the same as above only he adds polyneuritic and meningitic types.

The diagnosis of the different varieties of poliomyelitis in the preparalytic stage is an impossibility at the present, and, as Koplik says, even in the paralytic stage a positive diagnosis only can be made with careful observation and then with some degree of doubt. The clinical symptoms of the preparalytic stage are common to all varieties and may be grouped under the heads of constitutional and nervous.

Constitutional Symptoms Same as an Infectious Disease.—The constitutional symptoms are those of almost any infectious disease. In infancy and childhood it is generally ushered in by sudden onset usually with digestive disturbances. Vomiting and constipation or diarrhea with tympanites is very often present. More or less fever is present with increased pulse rate, together with general prostra-

* Read before the Symposium Medical Society of Los Angeles, October, 1912.

tion. This is associated with peevishness and irritability and occasionally but rarely with convulsions. A. H. Brown mentions a petechial skin eruption as characteristic. I have seen it but once. In older patients we have the same, with headache and aching limbs, anorexia, fever and at times delirium. None of these symptoms are diagnostic and as you all know may be present in almost any infectious disease.

Nervous Symptoms Simulate a Meningitis.—The nervous symptoms are characteristic of a meningitis. The irritability becomes more pronounced and the skin becomes extremely hypersensitive. This is perhaps the most constant and important early symptom. The reflexes are more active, later sluggish and finally lost entirely. I have found that occasionally the absence of knee jerk or abdomen reflexes precede the paralysis and was about the only suggestive sign. We have some change in cerebation and complaint of difficulty in getting chin down on the chest. The back is also stiff, sitting up in bed is difficult, and the gait is changed.

There is also some localized sweating which I have classified as a nervous symptom, and which is no doubt due to disturbances of sweat center or vasomotor control. Echert considers the sweating one of the most important symptoms.

In addition to these we have the symptom of pain. According to most authors this is a most common and almost constant symptom, but it has not been my experience to find it so important, because it is a common belief among the laity that "infantile paralysis" is preceded by pain. This causes the parents in their great anxiety and fear of the disease to suggest this symptom, thus often making the report of it so vague and indefinite that it has caused me more or less to disregard it in children.

Another symptom, very suggestive when properly associated, is lack of usual co-ordination. Frequently the first symptom noticeable is that the child falls easily, knocks things off the table or cannot get food to the mouth easily when eating, or has difficulty in handling objects.

So far all the symptoms are recognized by the best authorities as being characteristic of the early stage of poliomyelitis and when properly co-ordinated they are very suggestive, but without the paralysis, it is impossible to diagnose your case, unless a lumbar puncture is made and even then there may be some degree of doubt.

A New Preparalytic Symptom: There is one symptom which so far I have not mentioned which to me in this epidemic has been of great assistance in making a preparalytic diagnosis. The symptom is not mentioned in any text book, nor can I find reference to it in the recent literature.

As I stated in the beginning every man's experience is different and every epidemic is different and brings forth some new symptom or adds some new knowledge. The symptom I am about to describe may or may not have been met in your experience and it is for the purpose of getting your criticism and stimulating discussion that I am influenced to emphasize it.

The symptom referred to is a peculiar twitching tremulous or convulsive movement of certain groups of muscles lasting from a very few seconds to less than a minute. The amplitude of vibration is greater than a tremor, not so constant and long as a convulsion, and more regular than mere twitching, yet it has in it some of the elements of all. It usually affects a part or whole of one or more limbs, the face or jaw, but it may sometimes affect the whole body. The symptom may easily be overlooked in the beginning as it usually lasts less than a second and does not recur, unless the patient is disturbed, oftener than every hour or so. Later the duration of the spells lengthens, first to a few and then several seconds; at the same time the intervals between become shorter. This condition is often accompanied by a peculiar cry similar to the hydrocephalic. At times there is a slight convulsive movement just like a chill, as mothers say, during which time the child is apparently unconscious with eyes set for a few seconds and then he apparently becomes perfectly normal again. This short unconscious spell with eyes set may occur without noticeable convulsive movements. It acts thus something like a *petit mal*. I have observed it as a twitching of the lips with tongue running in and out and working of jaw, preceding bulbar cases.

Resemblance to Strychnin Poisoning: The phenomena resemble the condition found in cases of strychnin poisoning only the tetanic contractions are not general and do not last for a long time. They usually involve a set of muscles with one or more of the counter muscles not affected. Hyper-sensitiveness of the skin is also similar. The least stimulation of the skin is followed by slight convulsive movements with rigidity of the arms with fingers separated and wrist flexed. When the patient turns in bed, either through the external stimulus or the effort to co-ordinate, the movements are quick and jerky accompanied usually with slight convulsive movements of the limbs.

Simulates Infection Neuroses: It seems to be similar to the infection neuroses described by neurologists, of which tetany and chorea are good examples. It also simulates a tic and *petit mal* and yet it is unlike all of these. It is not unreasonable to suppose that the presence of the virus of poliomyelitis may bring about effects similar to those of chorea and tetany. A local chemical or other irritation of the nervous centers is produced with subsequent fatigue and later recuperation resulting in the peculiar motor phenomena I have described as a preparalytic symptom.

The only reference found to this symptom in the literature is made by Wickman, Zappert, and Wilbur. Wickman observed one phase of it and but once in his many cases, while Zappert and Wilbur observed only the muscular twitching in limbs. No one so far as I can learn has described the symptom I have just given you. I have not worked out to my satisfaction the relation of local twitching to paralysis.

Explanation of New Symptom: Having once observed this phenomenon which I took to be a

common symptom, until I began to look it up, I set out to find an explanation. Let us digress and review the condition found in the preparalytic stage. According to the best authorities (Flexner, Lewis, Draper, Peabody and others), during this early stage we find the spinal fluid containing great quantities of the virus, which disappears more or less as soon as paralysis sets in. With this we have an increase in spinal pressure. The fluid is not an exudate like lymph but a secretion from the choroid plexus, no doubt stimulated by the virus. The cells in the whole cerebro-spinal system are bathed by a fluid containing a toxin under increasing pressure. This throws the ganglia and cells into a highly excited state. Some areas are attacked more than others and we have a series of explosive contractions followed by rest similar to the artificial chemical excitation with fatigue manifested in a muscle-nerve preparation.

I have thus endeavored to explain the cause of the tremulous twitching, convulsive *petit mal* phenomena. Now how can their peculiar local distribution be explained? And how can we explain the lack of co-ordination and the escape of one or more counter muscles? As you remember, the virus attacks not only the nerve tissue but also the vascular system. John Lovett Morse says that there is interference with the blood supply in the cord resulting from inflammatory processes in the vessel wall. Hemorrhages, large and small, into the cord are not uncommon. The blood supply in the cord is horizontal while the nerve supply to a group of muscles is not all derived from the same segment. We have the cord affected in some segments while others escape, thus accounting for the peculiar distribution and lack of co-ordination. This condition is always noticeable in the convalescence. I have seen cases where the children had to learn to walk and feed themselves again, and others must learn again to talk.

Spinal Fluid in Preparalytic Stage: Finally it is important to mention the condition of the spinal fluid as of preparalytic diagnostic value. Some investigators find the fluid clear and slightly opalescent, under increased pressure. It contains increased polymorphonuclear cells and reacts to the protein reaction with Noguchi butyric acid test. By most authors this is considered the only reliable preparalytic test, and it is open to question.

THE EFFECTS OF CIVILIZATION UPON OUR EYES.*

By AARON S. GREEN, M. D., San Francisco.

With almost periodic regularity we meet with reports of the deleterious results that errors of refraction have upon the mental and physical well-being of our school children.

Refractive errors of a half and even a quarter of a diopter are credited with the production of torticollis, chorea, epilepsy, hysteria, hallucinations, maniacal temper, moral perversity, etc., etc. We are constantly warned that we are in grave danger of being converted into a race of myopes.

We have for years been taught that the demands of our educational system are gradually changing the hyperopic eye of infancy, decreasing the amount of hyperopia in the primary grades, until approximately fifty per cent. are myopic in the higher grades of high school. This change is supposedly effected by a progressive stretching of the tunics of the globe until the small eye of the hyperope, becomes the large eye of the myope. This is a pathological condition just as surely as a dilated heart is pathological.

If the above assertions be true, the outlook for humanity would be gloomy indeed. With the advance of civilization comes an ever increasing demand upon the eyes. Literature is cheaper and more easily obtained. Public libraries are increasing in number and more accessible. Even the moving pictures make an additional demand upon the eyes of considerable magnitude.

The question to be answered—Are our eyes actually giving out under the stress of advancing civilization, or is nature asserting itself and meeting the demands?



Fig. 1. (A) Middle turbinate. (B) Inferior turbinate. (C) Lateral bony nasal wall. (D) Muco-periosteal flap turned down over inferior turbinate. (E) Lacrimal sac.

Is it not barely possible that our reasoning has been faulty, and our fears groundless. It seems that we have overlooked nature's adaptability to changing conditions. Nature's dictum appears to be that organs rendered useless by the habits of life shall eventually degenerate. As examples we recall our rudimentary auricular muscles, the appendix, the wisdom teeth, etc. The reverse is also true; namely, increased use of organs results in their greater development. As examples again may be mentioned the hypertrophy of the heart in impeded circulation or the hypertrophy of one kidney when the other becomes functionless. Numerous other examples will suggest themselves

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to all. This generally normal adaptability has not been sufficiently credited to the eyes. Instead we have assumed the pathological change of that from hyperopia to myopia. If it were true that the eyes become increasingly more myopic from the lower to the higher grades in school, our case-records would show them to be of common occurrence. We would find that a child who is hyperopic in the grammar school had become myopic when examined a few years subsequently. This I venture to say is very rarely met with. In the vast mass of refractive cases at the Stanford clinic covering a period of over ten years the writer found no case of hyperopic eye becoming myopic, and only two in which the existing myopia had increased in amount.

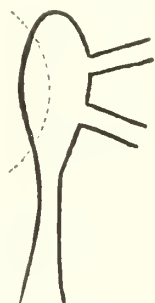


Fig. II. Lacrimal sac (diagrammatic), dotted line showing part of sac excised.

On the other hand one frequently encounters eyes that appear to have a small amount of myopia which become hyperopic a few years later or when refracted under a cycloplegic. This, of course, is nothing but a pseudo-myopia, the result of a tonic or clonic spasm of the ciliary muscles. It therefore seems fair to suppose that nature meets the demands made upon the eyes by producing a compensatory hypertrophy of the ciliary muscles instead of making the eyes pathologically myopic. In support of this view we have statistical evidence to show that not only is myopia not on the increase, but decidedly on the decrease, and further that the normal eye is not the emmetropic eye, but the slightly hyperopic eye.

It has been the privilege of the writer during the past year to examine the eyes of over two thousand students for entrance at the University of California at Berkeley. Naturally they represent that class upon whose eyes the march of civilization would play the greatest havoc. The examination consisted of taking the vision by the distant test-type, ascertaining the refraction by skiascopy and trial lenses, examination of the fundus and testing for heterophoria and color blindness. The results of the examination may be considered accurate as far as accuracy is possible without a cycloplegic. All refractive errors below one-half D and all heterophoria below one degree were considered normal. This is surely on the side of conservatism. Cyclopegia would probably have reduced the number of emmetropes perhaps ten per cent. and myopes three or four per cent., while it would have increased the number of hyperopes maybe five or six per cent.

A point elicited at time of examination was the comparative freedom from asthenopia.

The results obtained in an examination of 2083 men and women were as follows:

Emmetropia 29 per cent.

Hyperopia, including simple and comp. H. Astig., 57 per cent.

Myopia, including simple and comp. M. Astig., 14 per cent.

The point of interest here is the small percentage of myopes. These figures approximate closely to those obtained by Dr. Burnett, who conducted the examinations at the University of California in 1910 and 1911, who found among 2320 students 15% myopic, and are in marked contrast to those obtained by the older writers for the same school grades. In the statistic given between the years 1871 and 1876 myopia was found by Erismann, St. Petersburg, to occur in 45% in the highest classes; Pfluger, Switzerland, to occur in 55% in the highest classes; Conrad, Germany, to occur in 62% in the highest classes; Loring & Derby, New York, to occur in 26% in the highest classes.



Fig. III. (A) Flap replaced in position with its postero-superior border excised and showing opening into sac.

Tschering in 1883 reported myopia occurring in 32% of the university students. Coming to examinations made recently, Parsons of England found only 10% to 15% myopia. This is more in accord with our own figures.

As to the primary grades we found at the Stanford clinic myopia to occur in 10% of the children between the ages of six and fourteen years.

If civilization is actually playing havoc with our eyes, then myopia, which is supposed to be pre-eminently its product, would be on the increase instead of on the decrease and would be manifest from the lower to the higher grades.

We are therefore justified in the following conclusions, applicable at least in California:

First—Hyperopia and not myopia is the prevalent refractive error among university students.

Second—That with but few exceptions the refractive error remains approximately the same from early childhood to maturity.

Third—That the great discrepancy found between the older writers and those of to-day is to be explained in part by the assumption that our eyes are actually becoming stronger and that our methods of examination are more exact. This latter view has some weight when we remember that the older statistics were given while the science of refraction was still in its infancy and before skiascopy was in vogue.

PARTIAL BILATERAL NEPHRECTOMY IN A CASE OF CALCULOUS PYONEPHROSIS.*

By WILLIAM E. STEVENS, M. D., San Francisco.

The tendency of late years has leaned toward conservatism in renal surgery, especially since nephrolithotomy and nephropylotomy have been introduced and become well recognized operative procedures. The removal of a kidney for an existing nephrolithiasis was considered more or less prohibitive, and especially in cases of bilateral calculi was it looked upon as a grave mistake. Since the introduction of radiography into our diagnostic armamentarium, bilateral nephrolithiasis, which was considered very rare in preradiographic times, became a more frequently diagnosed pathological condition. It is considered by good authorities to occur in about 30 per cent. of all cases, although the average in this country is somewhat less. It is obvious that here our aim must be to preserve the organ, although it may contain but very little functioning tissue. In the majority of cases only one kidney will be destroyed to such an extent as to make its removal imperative. In our own case, however, both kidneys at operation showed such an advanced stage of pyonephrotic destruction that if the process had been unilateral the removal of either kidney by primary nephrectomy would have appeared to be the most logical procedure. Before commenting further on the operative method pursued, a brief description of the case will be in order.

The patient is an Italian boy nineteen years of age, single and a barber by occupation. His family history is negative and he has never suffered from any other illness. He came to me in July of last year complaining of pains in the hypochondriac regions, intestinal flatulency, occasional pain in the epigastrium, together with sour stomach and dryness of the mouth. The pain had begun six months previously in the left hypochondrium and a week or two later had made its appearance on the right side. It was usually dull, but at times quite sharp. He had been treated for gastritis, malaria, rheumatism et cetera but without results. The general examination was negative. The kidneys were not palpable. The stomach contents were normal except for a slight increase in the total acidity and in the free hydrochloric

acid. The blood examination was negative except for a slight reduction in the amount of hemoglobin. The urine was cloudy and on examination showed pus cells in abundance and a few blood cells. No subjective urinary symptoms were present. The frequency of urination during the day was not increased nor was the patient required to empty his bladder at night. A satisfactory cystoscopy was only obtained after much effort on account of the nervousness of the patient and the difficulty of obtaining a clear bladder medium. Finally the picture became sufficiently clear to warrant the diagnosis of chronic cystitis. Both ureters were seen to be patulous, the trigone was injected and the interureteral ligament presented a bar-like protrusion. The ureters were catheterized and cloudy urine obtained from both sides, that from the right kidney being more marked, however, than that from the left. The following functional and microscopical results were obtained after a number of cystoscopic examinations.

The urine from the right kidney was very cloudy, acid and contained a large amount of albumen. Microscopically pus was found in abundance, also a few blood cells and a number of small round epithelial cells, the majority of which were degenerated. The urine from the left kidney was cloudy, acid and contained a trace of albumen, microscopically many pus cells, a few blood cells, and many round epithelial cells, some of which were degenerated. The bacteriologic examination showed the colon bacillus on both sides. Besides the fact that values on both sides were somewhat low the functional tests showed a comparative decrease on the right side. Radiography showed eight typical stone shadows on the right and six on the left. The absolute kidney function, ascertained particularly by blood cryoscopy, 0.556, was satisfactory. As the right kidney appeared to be in worse condition than the left, obviously more reliance could be placed on the latter functioning properly after the exposure of its mate. It was therefore decided to attack the right side first.

First operation—On August 8, 1912, the right kidney was exposed, under general anesthesia, and freed from extensive adhesions. When the organ was finally brought to the surface it was found to represent a large pus sac, which, upon incision, permitted the escape of a number of calculi, together with a large amount of serous fluid. Both renal poles were mere shells, but as the center of the sac contained apparently healthy kidney tissue, as much as possible of the diseased portion was removed, together with a large part of the enormously dilated pelvis. The cut edges were carefully approximated with interrupted catgut sutures, drains inserted into the remaining portions of the upper and lower poles and the wound closed by layers. The patient rallied surprisingly well from the operation. During the first twenty-four hours 550 cc. of bloody urine were removed from the bladder. Gradually the amount increased, the urine became clearer and the condition of the patient improved.

Five and a half weeks later the patient left the hospital temporarily. He was at that time in fairly good condition, although the urine was still cloudy and contained pus.

On October 8, 1912, the patient re-entered the hospital for operation on the other kidney. Cystoscopy showed a picture almost similar to that prior to the first operation. The catheterized specimens of urine from the right side now contained a much smaller amount of pus than those from the left. The appearance of sugar and thalein on both sides was still delayed while the values for absolute renal functions were normal.

Second operation—On October 10, 1912, the left kidney was exposed, under general anesthesia, and

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found to be very much enlarged. It presented a large fluctuating sac, which, when incised, permitted the escape of a large amount of muco-purulent fluid. Six calculi were removed from the calices. The walls of the sac were resected in the same manner as in the opposite kidney and the cut edges similarly approximated. A rubber drainage tube was placed in the renal pelvis and gauze drains in the parenchyma. A small iodoform drain was inserted as far as the kidney and the wound closed by layers. The patient suffered from shock and some general sepsis, not rallying as well as after the first operation. He gradually recuperated, however, the daily quantity of urine increased and became less cloudy. The wound began to heal and he was discharged in four weeks and six days in good general condition, with a small fistula which healed a few weeks later. Since that time he has increased in weight and strength and has followed his usual occupation. His general functions are normal. He urinates at regular intervals and the urine is almost clear although it still contains a small amount of pus microscopically. The kidney pelvis were washed with a light silver solution at intervals of ten days to two weeks, with very gratifying results as regards the clearing of the urine. At the last cystoscopic sitting, made about ten days ago, the following data were obtained:

Right.	Left.
Urea0.011	Urea0.012
Sugar after phloridzin..0.3	Sugar after phloridzin..0.5
Micro—A number of pus cells, small round epithelial cells and a few fresh blood cells.	Micro—Many pus cells, single and in clumps, small round epithelial cells.

The literature upon partial nephrectomy or renal resection is not an extensive one. It dates back to 1887 when Czerny removed a portion of the organ in a case of angiosarcoma. Eighteen months later on account of a local recurrence complete nephrectomy was performed. The patient died five months later from metastases in the lumbar spine. Four years later, in 1891, Kummel successfully resected the upper pole of one kidney on account of an inflammatory process. In 1895 Tuffier reported five cases of partial nephrectomy for an alleged benign neoplasm, cystic dilatations of the renal calices, calculus pyonephrosis, adenoma of the kidney, etc. Bloch removed part of one kidney in a boy of thirteen years for adenosarcoma, and Debet performed the same operation in 1904 for a large perirenal fibroma. Kelly removed in the same manner a large cyst of the right kidney in a woman of thirty-three. His patient died of uremia shortly after the operation. Sorel's patient, a young woman from whom a large echinococcal cyst was removed by partial nephrectomy, made a good recovery. Semb reported the removal of a solitary renal cyst with resection of the lower pole in a woman of fifty-two with recovery, and Krogus removed a pararenal cyst with part of a kidney in a young man of twenty-four. A permanent fistula resulted for which later complete nephrectomy had to be performed. Leopold, Kronlein, Wyss, Etcheverry and Fabricus published reports of large cysts the removal of which was feasible only by partial nephrectomy.

In addition to neoplasms of cystic or solid nature, partial renal resections have been performed for certain forms of infarctions located in the cortex of the organ, for circumscribed tubercular foci, especially when located at either of the poles, for benign neoplasms, including hypernephroma, inci-

sions for the purpose of diagnosis, as in chronic nephritis, on account of traumatism in rare instances and for urinary fistulas of renal origin. For these indications fifty cases have been recorded in the literature in which the kidneys were subjected to partial ablation. Among them I fail to find any report of bilateral resections, and in this respect our own case presents a rather unique observation. Noteworthy also was the absence of severe hemorrhage and the comparatively speedy convalescence from both operations, as well as the rapid increase in renal function due no doubt to hypertrophy of the glomeruli and tubules compensatory for the loss of renal parenchyma. The method of operation in this case was identical to the one practiced by the majority of those who have reported similar operations. It is not advisable from one observation to make deductions upon which to base our actions in all future instances of like nature, nevertheless this case proves to what an extent renal tissue may be removed and how little of the parenchyma is required for satisfactory function.

I acknowledge with thanks my indebtedness to Dr. Martin Krotoszyner for his invaluable assistance in the above case.

X-RAY FINDINGS ALONG THE GASTRO-INTESTINAL TRACT.

By ALBERT SOILAND, M. D., Los Angeles.

Röntgenology as applied to the alimentary canal by such men as Holzkecht, Kienbech, Kastle, Rieder and Rosenthal abroad, and Cole, Pfahler, Case, Stover, Cooper, Painter with many others in our own country, has opened up a field of diagnostic possibilities which is destined to add greatly to our store of knowledge pertaining to internal medicine.

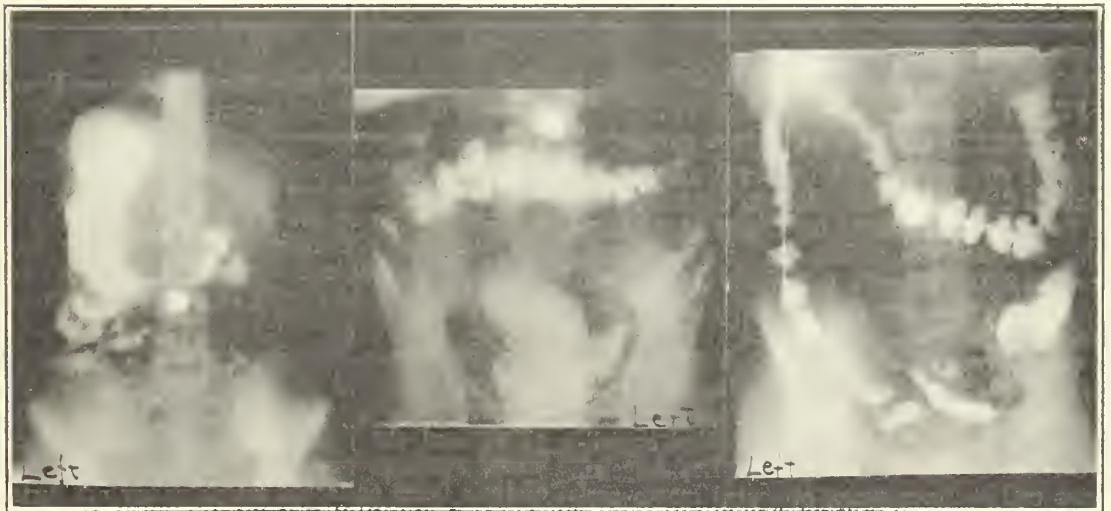
The first great difficulty to overcome when confronted with the Röntgen plate is to differentiate the complex normal gastro-intestinal motor phenomena, from the abnormal or diseased. This is not easy when we recollect that the stomach assumes many shapes, and frequently occupies positions at variance with the normal, oftentimes without giving rise to abnormal symptoms. The same is true of the intestinal organs, and particularly of the large bowel, which even in health is capable of gymnastic feats that are extraordinary. It is indeed rare to find the transverse colon above the umbilicus, which should be, according to text book and post-mortem findings, the normal situation of this organ. Equally varied in location are the flexures. These are rarely found upon the same level, the splenic flexure usually assuming the superior position. Frequently the flexures are reflected very acutely in a manner to suggest adhesions or mechanical interference with peristalsis. Often the transverse colon is sagging "U" shaped or pulled down into a "V" by iliocecal or other adhesive bands. The sigmoid true to its name may be found doubled upon itself. All of these anomalies would naturally react unfavorably upon normal function. One of the interesting features noted is the enormous size of the cecum in some individuals. Perhaps this may serve to explain



Impaired motility of stomach. Transversely placed. Low position. Muscular inactivity.

Extreme gastropotosis with enlargement of organ. Round spot indicates navel. Note elongated upper pole of stomach free from bismuth, also contraction waves on lesser curvature.

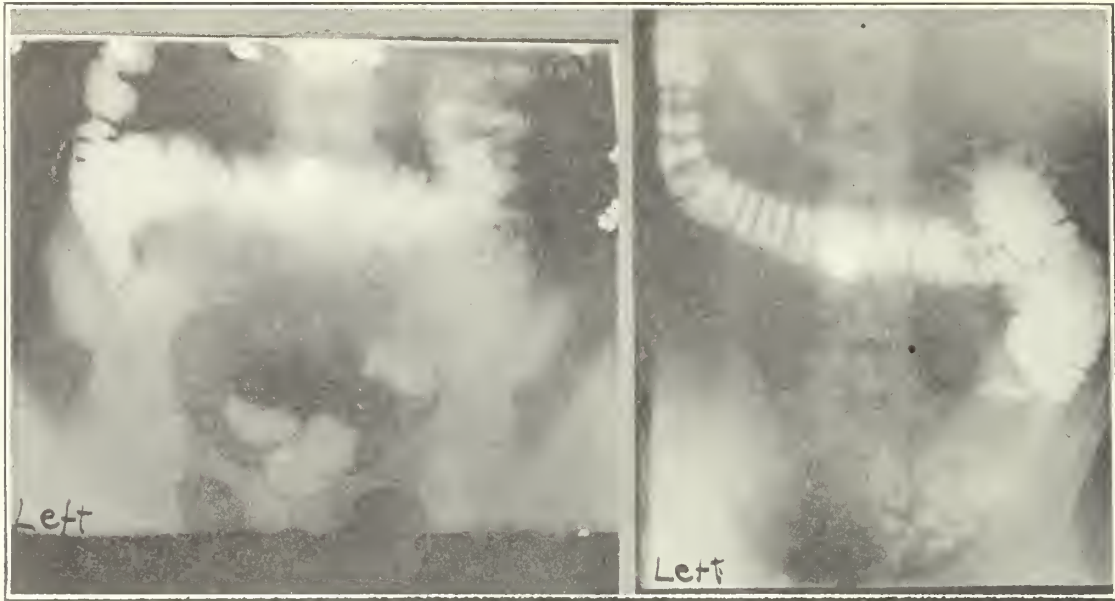
Diverticulum of esophagus. 1. Expanded esophagus with stricture. 2. Normal bismuth filled stomach.



Carcinoma of stomach involving lower pole and pylorus. Tumor surrounds pylorus, showing stragulation near pylorus.

Constriction of transverse colon and dilatation of sigmoid. Sigmoid depicts a rope-like twist. Please note that this cut is viewed from the front. The balance are viewed from the back.

Kink of transverse colon with constipation. Cut shows bismuth filled descending colon, a condition rarely found when bismuth is given by mouth.



Dilatation with impaired function of cecum.

Enormous enlargement of cecum. Note extreme length of this organ, extending from the first lumbar vertebrae to the pubis.

the occurrence of appendicitis in patients in whom we find chronic constipation associated with a large inactive cecum.

Bearing these little points in mind we are ready to read the Röntgen plate, which it can be stated should supplement, but never supplant the clinical findings in the case. For stomach examination alone, two plates are necessary, one with the bismuth meal and one five to six hours later. For intestinal work two to four additional plates

should be made at such hours as will bring into relief the particular organ desired. It may be apropos to add that nowhere in the radiologic field is stereoscopic examination of more interest and usefulness than here.

The accompanying cuts serve to illustrate some of the points alluded to in this brief presentation and will indicate in a measure what may be expected of a Röntgen plate covering the gastro-intestinal field.

AFFECTIONS OF THE EYES RESULTING FROM SINUS INVOLVEMENTS.*

By ROBERT W. MILLER, M. D., Los Angeles.

Some of the grosser and more palpable ocular and orbital disturbances secondary to diseases of the nares and accessory sinuses have long been recognized. Developments within the past few years, however, making possible and fairly certain the recognition of various non-suppurative diseases of the accessory sinuses and of "closed" non-draining suppurative processes and their relations to ocular disturbance mark a very distinct advance in this field of work. The very frequent occurrence of sinus inflammation, with ocular or orbital complications noted by me in my work in Los Angeles, the past two or three years, prompted me to prepare this paper for your consideration. It has been my habit for at least ten or twelve years to examine as to the existence of sinus disease the great majority of patients calling on me for the relief of ocular pain and discomfort. Not a few patients have called of their own accord or been referred by other physicians with the impression that relief was only to be had by wearing glasses for the correction of refractive errors. In some

of these, the glasses have afforded but partial relief or none at all, until the contributing sinus disease was corrected. Some of these patients with such refractive errors as might, and sometimes do, cause much ocular discomfort have found complete relief, after correction of the sinus trouble, without the use of glasses. Omitting many important details of the anatomical and physiological relations bearing upon our subject, the following may be mentioned:

The maxillary, frontal, ethmoidal and sphenoidal sinuses are designed to *constantly* contain air. They all have small apertures for the ingress and egress of air and the egress of their mucous contents. These apertures are situated far above the levels of their floors or lowest walls. They are furthermore covered by a mucous membrane, highly vascularized and innervated by sensory filaments from the fifth cranial nerve, regarded by physiologists as by far the most sensitive nerve in the body, and have also abundant distribution from the sympathetic system. The motor oculi and the sixth nerves find their distribution in the levator palpebrae and the extrinsic muscles of the eye. The bony orbital walls are thin, and blood vessels communicate through them between the air chambers and the orbits. Caries and even dehiscences of these

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walls are sometimes found. The ethmoid veins empty into the ophthalmic veins, as do also the veins from the interior of the eye and the orbit, while the ophthalmic veins empty into the cavernous sinuses. In conveying infection, the lymphatic vessels doubtless play an important yet indeterminate role.

The origin of the internal rectus muscle at the inner part of the orbital apex and the trend of its body along the naso-orbital wall account for certain so-called ocular "neuralgias" occurring in sinus affections, especially when coincident with the act of convergence when using the eyes for near work. Such pains are probably aggravated also by the action of the superior oblique and ciliary muscles. In extensive orbital involvement, all the extrinsic ocular muscles when functioning may contribute to the patient's discomfort. Ocular or orbital pain at some stage of the process must be regarded as one of the chief symptoms of sinusitis. Its severity is determined by the location and severity of the primary lesion, the amount of retention and pressure within the cavity, the blood stasis, the occupational and constitutional conditions of the patient, and also climatic vicissitudes.

Ocular neuralgia independently of a localized pathological process, must at least be regarded as a very rare occurrence. Well directed search will usually reveal the seat of the trouble and proper therapy will afford relief.

The seat of the pain is largely determined by the sinus or sinuses involved. It is well known, however, that in a very large proportion of cases, more than one sinus on one side is involved and that by a secondary infection of one from the other a pansinusitis is not very rare. In a large proportion of cases of sinusitis, the affection is bilateral, although unilateral cases undoubtedly occur.

It is assumed that all of us who are doing rhinological work are familiar with the varying anatomical conditions, especially those affecting the relations of the turbinate bodies and nasal septum, and will understand why sinus diseases are so generally bilateral.

Pain due to disease of the maxillary antrum is referred to the eye, the orbit, the teeth, and occasionally to the ear. Pain in the ethmoid area may be described as a deep-seated headache or vague pain in the head, a sensation as if the eyes were being pushed forward, or maybe located in the eyeball or orbit or the supra-orbital region. If located in the latter site, it speaks also of probable frontal sinus involvement.

Pain localized about the nasal half of the anterior part of the orbit and immediately above it points to frontal sinusitis, and if, as is more rarely the case, it is most severe at the glabella, disease of both frontal sinuses may be suspected. Such a condition, however, rarely exists without some degree of ethmoidal involvement. I have had occasion to note the frequent occurrence of a frontal sinusitis in persons whose frontal bones are so formed as to place these sinuses far forward or in the overhanging position in relation to the orbit.

These cases are apt to be of a severe type and especially invite ocular complications.

Pain of a deep-seated character referred to the entire head or localized in the occipital region is frequently due to diseases of the sphenoidal sinus. Pressure applied by the finger tip immediately over an affected sinus will usually elicit tenderness. This applies to acute and sub-acute attacks. The numerous other diagnostic tests for sinusitis are intentionally omitted in this discussion. For the sake of clearness in showing the relation of sinusitis to ocular disturbances the prominent place accorded to sinus involvements in the preceding paragraphs has seemed imperative.

It must not be assumed that the several types of sinusitis to which we have referred are the only abnormal processes in these areas that affect the eye and its appendages. Malignant growths in the maxillary, ethmoid and even the frontal sinus are sometimes found to be the seat of origin. They are simply mentioned here as an aid in diagnosis.

In order to avoid the error of referring the disturbance to the wrong source, we shall do well to remember that the origin may possibly be disease of the hypophysis, and the sinus and ocular manifestations follow in its wake. It is noteworthy that in my experience the ocular complications have been observed with far greater frequency in chronic than in acute sinus involvements. Numerous cases presenting acute symptoms, even as related to the sinus disease itself, have upon careful investigation shown unmistakable evidence of chronicity, with acute exacerbation. As a result of long continued retention, the exclusion of air with its supply of oxygen, and in some cases the steady and protracted oozing of the serous and mucous contents of the sinus poured out upon the contiguous structures, seem to aggravate the condition by maintaining in them a constant swelling, bogginess and eventual hyperplasia with or without suppuration.

This favors ocular complications which vary in degree from the milder, so far as relates to gross appearance, to the more pronounced types entailing intra-ocular or intra-orbital suppuration. In this connection, we are confronted by an interesting and somewhat important question, namely: In an infectious process of secondary ocular involvement, is the ocular disease a result of an extension of the original sinus infection, or is it probably due to the introduction of and invasion by a new micro-organism? That a given "strain" of micro-organisms, confined largely to a limited area, the middle ear, for example, tends to become exhausted and practically lose its identity and virulence with the lapse of time is well known.

In view of this fact, is it not reasonable to infer that in at least a considerable proportion of cases, a new micro-organism, notably the influenza bacillus is the most active causative factor?

Certain functional disturbances of the eye are of very frequent occurrence in connection with sinus involvements, especially those of the maxillary, frontal, and ethmoidal. They are asthenopia, or inability to use the eyes for near work, ciliary spasm with pain from convergence, blepharospasm,

photophobia, profuse lachrymation, muscular imbalance due to spasm, over action or diminished power in one or more of the extrinsic muscles. Ptoses of varying degree is occasionally noted. Hence, before venturing a prognosis or deciding upon any operative procedure for its correction, an investigation of the ethmoid area in particular should be made. Mydriasis is occasionally noted; also myosis, perhaps still less frequently. In order to still further exemplify the intimate relations existing between the eyes and the contiguous parts, we note that contraction of the visual fields and even temporary blindness have followed operations upon the middle turbinate bodies and the employment of the galvano-cautery or chemical cauterants within the nares.

The causes of organic ocular and orbital lesions are:

- A—Mechanical or irritative,
- B—Toxic,
- C—Septic.

These may result in hyperemia, hyperplasia or some type of inflammation. No part of the orbit, the eye or its appendages is immune to invasion through sinus disease.

The Eyelids. Here we note redness and swelling or actual edema, blepharitis and conjunctivitis. In cases of blepharitis, not of an eczematous type, and which persist after due attention to refractive errors and muscular imbalance, search for ethmoid and antral disease will probably reveal the cause.

A dacryocystitis may be found to be the result of disease of the antrum of Highmore. However, the well established facts as to the influence of syphilis, the so-called rheumatic or gouty diathesis and more rarely of tuberculosis as causative factors in the production of dacryocystitis should not be forgotten.

The Cornea. Here we find phlyctenular or other forms of keratitis, ulcer, abscess and sometimes nebulae or leukomata, due to sinus infections in which staphylococci, pneumococci, streptococci or the bacillus pyocyaneus is the source of the trouble, the infection having found its way through blood vessels and lymphatics. I have, more than once, witnessed corneal nebulae of years' standing, diminish in area and density when proper attention was given to the ethmoid sinus and nares. Obstinate corneal ulcers have likewise progressed much more favorably under treatment directed to the diseased sinus.

The Conjunctiva. Hyperemia of conjunctiva and follicular or purulent inflammation are frequently found as results of sinusitis.

The Lens. It has been asserted that cataract sometimes follows a sequence of sinusitis. While I have not observed any positive case of this nature, I can think of it as being within the scope of possibilities if brought about through a pronounced disturbance of the uveal tract, thus interfering with the nutrition of the lens (Zeimm cites cases).

The sclera and episcleral tissue and the entire uvea are frequently damaged through sinus involvement, the retina and choroid showing infiltrations, swellings or even hemorrhages.

In orbital cellulitis, with or without a phlegmonous process, the origin is usually to be found in an accessory sinus. The same is true of so-called suppurative chorioiditis, yet some cases are traceable to a metastatic process, the infection having been conveyed from some remote part of the body. I recall a case in which the infection was conveyed from a suppurating wound in the palm of the hand on the corresponding side of the body, the palmar wound having been produced by a sliver of wood.

While some degree of sinus involvement is a part of the average case of coryza or influenza, in my work, severe cases, both with and without serious ocular disturbances have been of much more frequent occurrence the past two or three years than formerly. The reason I am unable to explain, but it would seem that since such attacks have at times become epidemic, there is probably some special micro-organism that has a selective action upon the sinuses. I have conferred with a number of my confreres practicing in Southern California regarding this matter and find that the observations of several of them tally closely with my own.

A single case will serve to illustrate some of the points we have mentioned.

Mrs. G. M., age 35, applied for treatment on account of her eyes; complained of feeling as if sand were in the eyes, and that she was unable to use her eyes for near work. Has slight frontal headache at times but pain is chiefly in the eyeballs. Has a very moderate degree of conjunctival congestion; irides and muscle balance about normal. Visual field O. S., slightly contracted on temporal side. No scotoma either eye. Slight tenderness on pressure upper inner orbital angles. The ophthalmoscope reveals a mild chorio retinitis of each eye. Nasal septum normal. Middle turbinate bodies perhaps slightly enlarged, yet not especially red nor tender. No apparent abnormal nasal discharge anteriorly nor posteriorly. Refraction shows myopia O. D. of about 1.50 and myopic astigmatism of .50 ax. 135, O. S. .25 ax. 180. Glasses, treatment and prolonged rest for eyes afforded relief and after about four months patient could again use eyes about as usual. She came, however, with a recurrence of the trouble two years later, but with ethmoiditis of greater severity. The anterior part of the right middle turbinate body was removed and a few days later the entire left middle turbinate body was also removed. During the performance, pus, perhaps 2 cc. in quantity, was seen to flow from the ethmoid cells. This treatment was followed by marked relief and the eyes have given very little trouble since the operations.

Summary.

1. Sinus involvements are found to explain and clarify the etiology and pathology of many ocular and orbital diseases.

2. Sinus diseases and ocular complications have been especially prevalent in Los Angeles and Southern California the past two or three years.

3. In our examinations special care and repeated efforts are necessary in order to discover the source of the trouble in non-suppurative and closed suppurative cases of sinus involvement.

4. No part of the eye or its appendages is exempt from secondary invasion from sinus disease.

5. Such cases frequently occur in the epidemic form.

6. Early recognition of the exact nature of such cases is highly important in pointing the way to correct therapy and the conservation of the health and the preservation of the eyes of those who apply to us for relief.

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Bibliography.

1. Chas. Stedman Bull in Norris and Olive's System of Diseases of the Eye.
2. Fuch's Text-Book of Ophthalmology.
3. Weeks—Diseases of the Eye.
4. De Schweinitz—Diseases of the Eye.
5. Ballenger—Diseases of the Nose, Throat and Ear.
6. St. Clair Thompson—Diseases of the Nose and Throat.
7. Ball—Modern Ophthalmology.
8. W. C. Posey—Orbital Cellulitis from Diseases of the Superior Maxilla in Children, Jour. A. M. A., 1912.
9. Albert Andrews—Anatomical and Physiological Relations between the Eye and the Nose, Jour. Ophthalmology and Otology, 1911.
10. Albert Andrews—Non-Suppurative Sinusitis, Jour. Ophthalmology and Otology, 1912.

Discussion.

Dr. Miller, closing: In my paper I stated that ocular neuralgia, independently of a localized pathological process, must be regarded as a very rare occurrence, and that well-directed search will usually reveal the seat of the trouble and proper therapy will afford relief. Of course we all recognize the causative role often played by refractive errors and muscular imbalance in the production of ocular pain. Reference was made to them in another paragraph of my paper. I have seen a number of cases of optic atrophy traceable to sinus disease, the sphenoidal sinus usually showing involvement. Yet in other cases have been unable to discover such an origin. In some cases possibly for lack of more complete information as to the cause of the nerve degeneration I have been compelled to accept the idea of simple optic atrophy. If any member of the section has not been able to trace cases of ocular disease to a sinus origin it is my conviction that if he will habitually search for such an origin he will frequently find it.

RINGWORM IN CALIFORNIA.*

By HOWARD MORROW, M. D., San Francisco.

This paper is based on the cases of ringworm which have occurred in hospital and office practice during the past two years. During an epidemic in an institution I had the opportunity of examining and treating 45 children with ringworm. Smaller groups of cases were seen in other hospitals, and institutions for homeless children. With two exceptions all the scalp cases were of the microsporon variety, and none occurred in adults. The endothrix megalosporon was responsible for two cases occurring in one institution.

The infected children varied in age from 2 to 13 years, the majority of them occurring in those from 6 to 10 years of age.

The majority of cases outside of institutions gave a history of infection acquired from cats, and many others were infected by contact with ringworm children.

The danger of infection from cats is well shown by the following:

Two children in one family had tinea tonsurans, contracted from a thoroughbred angora cat. This

cat was sent away to a ranch and within two months the foreman of this ranch, his two children and two cats who were on the ranch, became infected. Following this, the microsporon fungus was found in scrapings from the original cat.

At least 20% of the 60 scalp cases had ringworm on other parts of the body, and 10% gave a history of starting on the glabrous skin and subsequently affecting the scalp.

Twenty-three patients had ringworm of the body; five of these were adults. Tinea infections of the flexures and extremities are not included in this classification. Of the eight cases of body ringworm from which cultures were obtained, the microsporon variety was the cause of seven. The other was a stableman with a kerionic ringworm of the forearm, and was produced by the ectothrix megalosporon.

I have had three patients with tinea barbae. These three men were all shaved by barbers. The microsporon infection occurred in a physician who had contracted his infection from his children, who had previously contracted theirs from a cat.

It seems strange that ringworm of the beard has formed such a small percentage of the total ringworm cases. From the above figures it will be seen that the majority of the ringworm infections of the beard are caused by the large spored fungus, whereas in the scalp the small spored fungus was the causative factor in 58 of the 60 cases. In the series of body ringworm only one large spore infection occurred, but it is probable that the percentage would have been greater if I had been able to cultivate the fungus from all the cases.

From information received through Drs. MacGowan, Williams and Dillingham of Los Angeles, I have formed the opinion that in Southern California the megalosporon infections are in greater abundance.

As a result of the work of Whitfield in London, and Sabourand in Paris, we are now able to explain the cause of a number of infections of the feet, which in the past have been classed as eczema, dermatitis, or dysidrosis. The particular fungus producing this infection has been called the epidermophyton inguinale and is the same variety which causes ringworm of the flexures, or eczema marginatum of the older writers. This is a variety of large-spored ringworm. I have seen 14 patients with this form of ringworm infection, nine occurring in the groin, two in the axilla, and three on the feet. Most of the cases were infected in the gymnasium of the State University. Apparently the benches were the chief source of infection, and Dr. Reinhardt has told me that the cases are decreasing as the result of careful disinfection. I am informed by Dr. Means that he has had some students in the University Infirmary for "eczema" of the toes, and it is probable that these are instances of ringworm dermatitis.

Ringworm of the groin is so characteristic that it will not be necessary to describe it in detail, but ringworm of the feet is so rare and our

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knowledge of it is so recent, that the various clinical conditions should be described.

The epidermis in the webs and in the flexures of the toes becomes sodden. This is accompanied by severe pruritis and occasionally there is a history of other flexures having been affected. Sometimes there is a squamous dermatitis of the sole or on the dorsal surface of the foot in the neighborhood of the toes. A vesicular eruption simulating dysidrosis, and occurring on the fingers as well as the toes has been described as a rare form of this particular ringworm infection. These conditions may last for years, but as soon as the diagnosis is made the cure is comparatively easy. The diagnosis is made by examining the scales on the periphery in liquor potassae, or by cultivation. It will frequently be necessary to examine several specimens before the fungus can be demonstrated.

Treatment: Ringworm of the scalp and beard responds to radiotherapy so satisfactorily that no other form of treatment will be necessary. If for any reason the X-ray is not used, chrysarobin is our best drug. It is advisable to combine it with phenol and salicylic acid in an ointment, to be well rubbed in, once daily. Care must be used on account of the tendency of chrysarobin to produce erythema and it is advisable to shave the scalp and require the patient to wear a linen cap. With this treatment the average case gets well in from four to six months, whereas with radiotherapy a cure follows in a month or less.

For ringworm of the body iodine and chrysarobin of each 1%, in an ointment, is very satisfactory. It might be necessary to increase the strength of the chrysarobin. Salicylic acid and sulphur will accomplish the same results, but slower.

For ringworm of the feet, the ung. hyd. ammon. is usually curative, but again, it might be necessary to add chrysarobin. When in the groin the strength of these preparations must be greatly reduced.

It has not been my intention to go into the treatment of ringworm in detail, but simply to mention the most satisfactory methods of combating the different varieties of this disease.

AN UNUSUAL CASE OF OPHTHALMIC MIGRAINE.*

By E. W. ALEXANDER, B. S., M. D., San Francisco.

Paroxysmal and functional nervous affections are obscure in pathogenesis and pathology. Migraine is a striking example of this and therefore a typical case exhibiting unusual characteristics, such as are present in the one I am reporting, should go on record as an aid to future deductions.

Every one is familiar with the classification of migraine into ophthalmic, ophthalmoplegic and psychical; also that the symptoms of pain, nausea, etc., are preceded by various premonitory symptoms. These premonitory symptoms vary greatly in character, intensity and duration. It is on the unusual type of such symptoms that my patient is interesting.

Case: Miss X is 22 years old. She has had

typical attacks of migraine since seven or eight years of age. Heredity is negative except for a cousin who has sick headaches. The premonitory signs of an attack of headache disappear before the pain begins, and consist of the visual type, being a homonymous quadrant hemianopsia to the right and occasionally the so-called white scintillating scotoma. There are no sensory or motor changes. The pain is universally on the right side of the head and includes the whole side. It is cumulative, aggravated by motion and noise, lasts for two or three hours and terminates abruptly. Nausea is a constant feature. There are no hallucinations or speech defects. The attacks have often been so severe that the patient has gone to bed in a darkened room. This was incompatible with the business she took up, and so she decided to see if her eyes were in any way responsible for her disability. Refraction revealed a moderate amount of hypermetropic astigmatism, which was ordered.

With the exception of one attack, soon after beginning the use of her glasses, the patient has experienced no repetition of her headaches in about 5½ months. But she still has her migraine in an abortive type, that is to say, the premonitory symptoms are present but no pain. It is here that the unusual features of the case appear.

Following the use of her glasses the patient had one typical headache. Another interval intervened before the premonitory symptoms of a second attack were initiated, but instead of the usual sequence of events she experienced red scotoma instead of the usual white scintillating type, and a quadrant hemianopsia of the right upper field, which has persisted to date, although it is now slowly clearing up.

The questions which naturally arise in one's mind are the possibility of an organic lesion, and the confusion of migraine with hysteria. These in turn lead to a wide and interesting field of speculation as to the etiology of migraine. In regard to the first question, no coincident symptoms of an organic lesion could be found in the nervous system as is embodied in a report of the findings of a general examination made by Dr. Harold Hill. Furthermore the patient has continued her occupation of stenography with more facility than previously, as far as her health is concerned, but has experienced the new annoyance of a limitation of her field of vision. Hysteria is not corroborated by any stigmata in general, as reported by Dr. Hill, nor in the color fields or corneal reflex.

As to the etiology of migraine, the consensus of opinion seems to lead to the theory that it is a vascular disorder affecting various parts of the cortex, and the dural branches of the trigeminus nerve which is part of a vaso-motor reflex cycle. A glance at the literature will show that practically every organ of the body has been held responsible for the reflex, or as Osler puts it, everything from a too high hat to an adherent clitoris. Some of the more recent contributions have again attributed migraine to a disturbance of the secretion of the thyroid or other internal secretory glands. This is supported by clinical data. A very instructive case has been reported, giving a series of observations extending over a considerable period, which demonstrates that certainly in some instances high vascular tension has an important bearing on migraine.

All observers do not agree that the lesion is in the cortex. However, my case, according to the commonly accepted idea that a *quadrant* hemianopsia must be due to a cortical lesion, would point

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definitely to such a location. The persistency of the hemianopsia could be more satisfactorily explained by a vascular condition than any other pathological process, and possibly of the type exemplified in angio-neurotic edema.

That the occasional permanency of scotoma in migraine has received recognition and must not be lost sight of in handling our cases, can best be stated by quoting from Dr. Herbert Moffitt's paper, "Clinical Observations on Migraine," which was read before this section in 1911.

"The transient visual phenomena of migraine may occasionally be followed by permanent lesions. Noyes has recorded a case of persistent hemianopsia succeeding ephemeral attacks many times repeated, softening of the cuneus being found at autopsy. Uhthoff has seen three instances of permanent hemianopsia follow upon migraine scotomata. The French school has particularly emphasized the danger of ophthalmic migraine and described varied sequelæ; as permanent aphasia, hemiplegia, hemianopsia and amaurosis."

I am satisfied that a carefully taken history of our headache cases will support the view that migraine is much more prevalent than is suspected. A typical case, of course, is quickly recognized, but the abortive type and the ones with some of the classical symptoms absent are just as important.

Investigation of such cases should not end with refraction, but should go on to a determination of the efficiency of the organs of internal secretion and excretion, as well as the questions of nutrition and habit in their broad sense. These patients should also be made to realize that, while their symptoms seem to point to local conditions exclusively, the real cause is generally widespread and often very obscure, requiring a long and painstaking search to discover.

FOUR CASES OF REMOVAL OF A PREFRONTAL TUMOR OF THE BRAIN.

By L. NEWMARK, M. D., San Francisco.

Nowhere else in the brain are the conditions so favorable for the removal of a tumor without disturbance of function as in the neighborhood of the anterior pole of the hemisphere. Despite a tendency to associate intellectual activity with the forebrain, a tendency which seems to derive strength from some cases of frontal tumor which simulated parietic dementia so closely that they were altogether misinterpreted, operative interference in this region entails no mental deterioration. The motor and sensory centers are too distant to be affected, and the foot of the third frontal convolution is also remote enough to escape damage which might cause aphasia.

This negative circumstance, however, which renders manipulation in the prefrontal area, other things being equal, less detrimental than elsewhere in the brain, implies a certain difficulty in diagnosis, namely, that which arises from the absence of unambiguous focal symptoms. The mental changes exhibited in variation of character, or dementia, or the famous "moria" of Jastrowitz, a

more or less fatuous jocularly, are not commonly very definite, and their significance as a focal symptom is still debateable. But a *pressure symptom*, the diminution of the sense of *smell*, is very valuable as a guide to the recognition of prefrontal tumors, not only of those situated at the base immediately superjacent to the olfactory bulbs and tracts, but also of those arising near the convex surface of the brain or from the dura covering it, and hence easier of access for the surgeon. Still, since it must take time for the tumor to grow sufficiently to exert pressure at a distance, the dependence on the anosmia will deprive us of the advantage of early diagnosis. How such a delay may imperil the patient's sight, if not his life, will be illustrated in the fourth case.



In all four cases the tumor was removed. Two patients are alive; one died a few hours after the operation, but could have been saved had she been seen earlier, before the growth had attained its great size; and the life of the fourth was prolonged about two years, death being inevitable on account of the malignancy of the disease. In every instance the histological examination was made by Professor Ophüls, of Stanford University.

Case 1. Endothelioma of inner table of the skull and outer surface of the dura mater. Operation by Dr. Harry M. Sherman. This case has been reported with many details in the Journal of the American Medical Association of April 22, 1911. It is recapitulated here because it belongs to the

group and because this is an opportunity to bring the history to date.

The patient, a woman of 38 years of age, had suffered from paroxysms of headache since May, 1906. In the interval she appeared to be well. In November, 1907, choked discs had first been observed. When first examined by me in March, 1908, there was, besides the choked discs, complete bilateral anosmia. A tremor of the upper and lower extremities on both sides attracted attention. The headaches were chiefly occipital, and the pain extended into the back of the neck and, on one occasion, as far downward as the upper dorsal region. There had occurred sharp clonic contractions of the muscles that retracted the head. A beating deep in, or behind, the left ear was complained of. Despite these symptoms, which for a time riveted our attention to the occipital region, the anosmia was more readily explained by a frontal disease: a localization which gained some slight support from her husband's statement that her character was changing and from our own observation of a certain affected hilarity about her. There still remained the necessity of determining whether the frontal lesion was on the right or on the left, as the anosmia being bilateral, gave no clue. From the uncertainty in this respect earlier observation would have saved us; and the doubt, I now am sure, could have been resolved even then by an examination with the X-rays. The most careful investigation by pressure and percussion and auscultation of the frontal bones disclosed no difference between the two sides; and the choice of the left was finally determined by the consideration that the disc on that side was a little more swollen than the other, that the beating was felt in the left ear, that the pain was felt more in the left half of the occiput and that the left half of the occipital bone was more tender to pressure than the other side. In April, 1908, Dr. T. E. Bailey removed from the left prefrontal region a disc of bone, on the inner surface of which there was a bony prominence which pressed the (thickened) dura inward. In this excrescence sarcoma cells were found. This limited operation was sufficient to relieve the patient from all headache and from the beating in the left ear, and to save her sight, for the swelling of the discs soon subsided, leaving good vision. But the anosmia persisted; and, furthermore, there protruded in a few weeks through the opening in the skull a tumor which jutted over the eyebrow. Her character was still perverse and her memory was stated by herself and her husband to be quite untrustworthy. It was not until December 5, 1910, that the patient would submit to the removal of the tumor; this was accomplished by Dr. H. M. Sherman. The growth, an endothelioma, which weighed 140 grams, had arisen from the outer surface of the dura mater and impressed this membrane to a great depth into the brain; the cavity left by its removal would have readily contained a small fist.

There followed almost immediately what Dr. Sherman called "a complete dispositional reversal."

In our publication of this case Dr. Sherman expressed the fear that more bone might have to be removed, wherefore he postponed the closure of the defect in the skull, which he intended to accomplish by means of a silver plate.

As a supplement to this history, and, I hope, its complement, I may now add that the silver plate has been inserted, with excellent cosmetic effect, and that when the patient was last seen, not long ago, she was ruddy, very fat, and perfectly comfortable.

In the next case the anosmia was also bilateral when the patient came under our observation, but the sensitiveness of the bone and the order in which the eyes became affected helped in deter-

mining the hemisphere, and the X-ray corroborated the conclusion.

Case 2. Angiosarcoma (perithelioma) of the dura mater. Operation by Professor Stanley Stillman.

Mrs. T., aged 21 years, came to us May 14, 1913. She had begun to suffer about nine months before from headaches and attacks of blindness. At first the headaches were frontal, only now and then felt in the back of the head; but since the birth of a child, four months before, they were felt over the right eye and in the eyeball itself. The sense of smell had vanished altogether about three weeks ago.

A doctor in Oregon wrote that a Wassermann test had given a positive result, wherefore she had been very liberally treated there with iodide of potash and mercury and two injections of neosalvarsan.

A Wassermann test made in this city turned out negative.

We found complete bilateral anosmia and choked discs. Examination by Dr. Green at the Lane Hospital on May 17 showed further that perception of light by the left eye was lost, that vision with the right was 15/15-, and that the field was very much contracted, being limited to the neighborhood of the fixing point, and tubular.

The frontal bone was tender to pressure on the left and this together with the greater impairment of vision in the eye of that side made the localization of the tumor in the left hemisphere reasonably certain. Some misgiving, however, was caused by the pain in, and over, the right eyeball, by the impression of several observers that there was a slight right exophthalmos, by a slight, but constant, increase of the left radius reflex when compared with the right, and by a loss of the left abdominal reflex while the right was present—symptoms which, if allowed full weight, would point rather to the right frontal lobe.

But Dr. Boardman's fine X-ray picture set the doubts aside by showing a bony projection from the inner table of the left frontal bone. There were no mental changes of any kind. No aphasia, no agraphia, no tremor.

On May 19, 1913, Dr. Stillman made an osteoplastic flap in the left prefrontal region. The gouging through the hyperostosis on the inner table, the circumvention of which was impossible on account of the proximity of the longitudinal sinus, was attended with considerable hemorrhage. The dura did not pulsate. It was infiltrated; the mesial portion of the exposed membrane was very hard. Some of the thickened bone was removed. Hereupon the patient's bad condition necessitated suspension of the operation.

When the osteoplastic flap was turned down on May 24, the dura was seen to pulsate and to bulge. The dura having been opened, a tumor attached to its inner surface was easily enucleated. The cavity which remained after the removal of the tumor bled but little. The brain seemed to be rather compressed than infiltrated, the line of cleavage was clean and did not bleed a great deal.

After the first stage the patient's hemoglobin declined rapidly; it was 48% at the time of the second stage; by May 28 it had fallen to 20%. It subsequently rose quickly and the patient could be discharged from the hospital on June 12 with the last remnants of a fistula from which cerebrospinal fluid had issued for 12 days.

The patient became quite blind immediately after the operation; but she regained a little vision in the right eye and when discharged had 8/200. The swelling of the discs had subsided.

The piece of thickened skull consisted mainly of normal bone, but on its inner surface cells were found which Dr. Ophüls took to be tumor. The growth itself was about 3½ inches wide and one inch thick, and weighed 72 grams. It was an angi-

osarcoma (perithelioma) of the dura mater. In all pieces of the dura which had been excised tumor was found microscopically.

Had this patient come under observation earlier no doubt her sight could have been preserved. The positive Wassermann, seeming to require specific treatment, is probably responsible for the waste of valuable time. The malignancy of the tumor makes us fear a recurrence.

In the following case, unlike the two foregoing, the anosmia was unilateral when the patient presented herself, although she came late in the disease; had she come a few days later, we should have been confronted with bilateral loss of the sense of smell. But here again the order in which the eyes were affected, and the sensitiveness of the frontal bone, would have rendered the localization comparatively easy. Like the Wassermann test in the second case, the urinary examination furnished a stumbling-block in this case; the presence of a trace of albumen with casts seems to have diverted attention from the brain. An earlier diagnosis could surely have saved the patient's vision, and probably her life.

Case 3. Gliosarcoma of left prefrontal lobe. Removed by Professor Rixford.

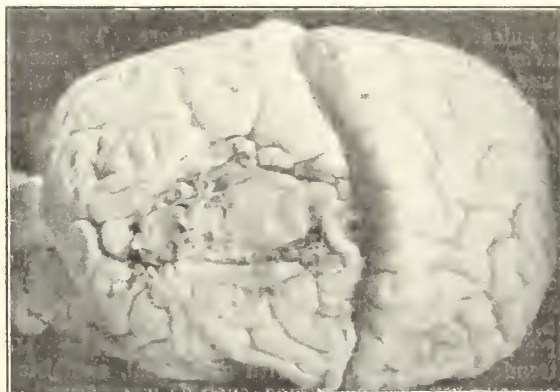
Mrs. R., age 30 years, was blind when we first saw her on June 21, 1911. Her blindness was caused by optic atrophy which had followed upon choked discs. From one oculist the information was derived that in March, 1910, there had been optic neuritis, far more advanced in the left eye than in the right; from another source we learned that exactly one year to the day before we saw her the disc were white; the right one "filled in," and the vision in that eye nearly 20/20, while the left was sharply defined and associated with only sufficient visual power to enable her to distinguish fingers at one foot. There was a report dated from the same period that in the urine there was a trace of albumin with many hyalin, granular and waxy casts.

By the patient herself we were told that she had always been subject to headaches, which had increased but little since her eyes had grown bad. The severest pain was now felt over the left eye. In the last six months she had been dizzy at times and would stagger when dizzy. No fault was found with her memory. She thought her sense of smell was unimpaired.

But the first examination immediately disclosed complete anosmia at the left nostril, while she could detect and distinguish odors very well at the right. She was examined every day with regard to her olfactory sense, with the same result until June 30, when we found uncertainty in recognizing the odor of substances held under the right nostril; the next morning there was total loss of the sense of smell. The left half of the skull was tender to pressure, but this tenderness was particularly distinct in the left prefrontal region. There thus concurred in indicating the side of the lesion (and its frontal site) the priority of the olfactory and the visual loss on the left and the tenderness to pressure in the left prefrontal region of the skull. There were no other symptoms. The urine was now normal, Wassermann in the blood negative. Of the existence of frontal ataxia, which might be presumed from the mention of dizziness and staggering, we could not convince ourselves. The patient's disposition was placid and cheerful, which, she said when questioned on the subject, was habitual with her.

There was no hope of restoring her vision, but we were justified in attempting to save her life. Accordingly Dr. Rixford was requested to operate in the left prefrontal region. On July 5, 1911, he removed the bone in this area. There was profuse

hemorrhage from the diploe. The dura pulsated, but it was rough and evidently affected by the tumor. On account of the loss of blood the opening of the dura had to be postponed. The operation was not resumed until 10 days later. The tumor was then shelled out entire, after which a large cavity was left in the frontal lobe. Not more than fifteen minutes was required for this second stage. About two hours after the conclusion of the operation, the patient seemed in good condition, but in less than another hour she suddenly expired. An autopsy was not permitted. The tumor was a gliosarcoma. It weighed 187 grams.



At what period of the disease the power of smelling was first affected could not be ascertained in any of the cases described in the foregoing. The loss of this function on one side does not obtrude itself upon the notice of the patient; when the anosmia is bilateral an affection of the sense of *taste* is likely to be complained of, but it is only the perception of flavors that is disordered. The only one of the group who consulted us before even unilateral anosmia had occurred, was the patient in the concluding case. He presented no tenderness of the skull at any particular point, nor was there a preponderance of visual disturbance on one side; the localization in this instance was long in suspense.

Case 4. Angiosarcoma of right prefrontal area. Removal of original tumor, and two operations for recurrence, by Professor Stanley Stillman.

When on December 19, 1910 Dr. Kaspar Pischel introduced to us G. S., a man age 31 years, from whose choked discs he inferred the presence of a cerebral tumor, a careful examination revealed no other departure from the normal except absence of the left Achilles reflex. Headache was very slight and was felt in the back of the head. Repeated examination by ourselves and by a succession of other doctors failed to furnish any indication of the situation of the tumor. On January 19, 1911, we caused particles of cerebral substance to be aspirated from the right temporal lobe through a small trephine-opening; these were examined histologically by Professor Ophüls and declared to contain no tumor cells. While the result of this exploration did not eliminate the temporal lobe altogether from consideration it made us rather persistent in watching for symptoms of frontal disease. We were duly apprehensive of the effects of protracting observation too long before interfering to relieve the pressure; but were reluctant to operate merely for decompression as long as there was time to await developments which might lead to a radical operation. When vomiting began in February, the patient's family were not easily convinced that the trouble was not abdominal. The headaches became very severe in

the course of that month; they were referred chiefly to the base of the skull and were associated with a feeling of constriction of the throat which made the patient seize his larynx at the height of the paroxysm and hold his breath until he became cyanosed. At last, feeling that it would be imprudent to delay longer, we determined to perform the ordinary temporal operation for decompression, and, encountering now no opposition, we agreed on March 13, 1911, as the time for intervention. But on March 12, re-testing once again the sense of smell we found anosmia at the right nostril. Accordingly, on the following morning a large flap was turned down in the right fronto-temporal region, and at the anterior part of the opening the dura was observed to pulsate less forcibly than elsewhere. The dura having been opened, a dark red infiltrating tumor came into view. This was removed together with surrounding brain-tissue; upon the incision, with which this was accomplished, there followed a gush of fluid and the operator's finger entered a cavity, probably the dilated ventricle.

After the operation the patient's visual power suffered a considerable decline. He was able to report at the office twelve days after the operation; his discs were still greatly choked. But in the course of a few weeks the swelling of the discs subsided, his sight improved very much, and there was no complaint about his visual acuity during the rest of his life. The sense of smell also returned. He attended to his business with great zeal, exhibiting generally much good-humor, such as was natural to him, and striving to bear philosophically the knowledge of the malignant character and the import of his disease. From time to time it was reported that his mind was not sound; there were rumors that he was displaying the exuberance of "paresis"; his wife related that he was changing mentally, but she could not convince us that there was anything more than an occasional fit of impatience or irritability very pardonable in one whose prospects were so desperate. To none of the medical men who attended him did he ever appear of unsound mind (except when he became delirious under the influence of narcotics). In July, 1911, he had a convulsive seizure, whereupon he was given bromide, to the use of which his exemption from further attacks for a whole year may be ascribed. After that period had elapsed, he suffered a series of more than seventeen convulsions in a single night, from which he emerged, however, apparently none the worse. Meanwhile a tumor had reappeared in the opening in the skull; it pulsed freely. Papillitis and headaches having recurred Dr. Stillman again removed the tumor October 1, 1912.

The papillitis disappeared, and in comfort the patient went about his affairs for several months. It was not long, however, before new nodules formed at the site of operation, despite the treatment with the X-ray, which had been sedulously applied ever since the first operation. In February, 1913, a fluctuating protuberance through the defect in the skull was punctured and 70 CC of turbid and discolored cerebrospinal fluid withdrawn. Herewith began the last stage of the disease. The fluid accumulated very rapidly, its tension became greater, the discomfort increased, the patient vomited, had headaches and flashes of blindness, and his discs began to choke again. The relief afforded by the punctures became briefer and briefer, as time went on, so that the patient demanded them more frequently, finally three a day. The photograph (Fig. 1) shows the protrusion on April 3, 1913. The tapings having become ineffectual, the patient's distress impelled us to a last palliative operation, and on May 15 a mass the size of a large lime was removed, besides smaller tumor-nodules from the flap. There was an immediate benefit from this; the swelling of the optic discs again receded, the headache and the vomiting ceased and the patient de-

clared he felt "fine". But after 10 days of comfort all the symptoms returned. The protrusion through the opening in the skull increased to several times the size of that shown in the photograph, and necessitated frequent tapings with the escape of ever larger amounts of fluid, until a maximum of 485 CC at a single sitting was reached. In the last 30 days of his life, which ended July 14, 1913, the quantity of fluid thus obtained amounted to 5173 CC!

Figure 2 shows the situation of the growth in the brain. This illustration will serve also to indicate the position of the tumors in the other members of this group, as Figure 1 indicates their site with relation to the skull. The proximity to the median line explains the production of bilateral loss of smell by a single tumor. The neoplasm in the last case penetrated into the anterior horn and extended far into the lateral ventricle, pushing away the corpus callosum and the internal capsule without invading them.

The following items of diagnostic importance may be gathered from this group of cases:

(1). The loss of the sense of smell may be of very great use in localizing the disease in the pre-frontal area. I find that some textbooks do not make this clear; they mention this disturbance rather as resulting from a lesion of the uncinate gyrus of the temporal lobe; Oppenheim, moreover, states that he has repeatedly observed the occurrence of unilateral or bilateral anosmia associated with tumors of the cerebellum, resulting from the pressure of the base of the brain upon the olfactory nerve. Had this statement been allowed to prevail in the cogitations upon the situation of the tumor in the first case, it must have misled us into seeking the growth in the posterior fossa.

(2). Three of the cases supply confirmation of the assertion that in frontal tumors it is the eye on the side of the tumor that is likely to be affected the earlier and the more severely.

(3). The X-ray picture may conduce to certainty in localization by revealing a circumscribed hyperostosis over the tumor.

(4). Circumscribed tenderness of the skull to pressure or percussion may be a valuable localizing sign.

(5). Whatever a positive Wassermann may mean, it does not necessarily mean that the patient's cerebral disease is cerebral syphilis.

THE DIFFERENTIAL DIAGNOSIS OF PALMAR SYPHILIS, ECZEMA AND PSORIASIS.*

By DOUGLASS W. MONTGOMERY, M. D., and
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The symptoms of syphilis, eczema or psoriasis of the palms are often so perplexing that a differentiation is not always possible, and yet a positive diagnosis is here particularly important, not alone because of the necessity of the hand in daily work, but also because these diseases in this situation are so liable to be refractory that the moral support of certainty is eminently desirable as tending to hold the physician to a correct line of treatment.

Since the fire of 1906 there are records in our office of one hundred and two of these cases, of

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which sixty-four are recorded as eczema and nineteen each as psoriasis and syphilis. We now proceed to a review of some points of interest in these one hundred and two cases.

The Syphilitic Cases.

Of the syphilitic cases twelve were of men and seven were of women. Considering the very much greater frequency of syphilis in males than in females, this was a much greater number of women than one would naturally expect. We do not know whether this was fortuitous in the relatively small number of cases, or incidental to the kind of practice, or from some natural inclination to this localization of the disease in women. Fourteen gave a positive history of infection, while five had either negative or doubtful histories. Of these five, four cleared up under treatment and one came for only a single consultation. The time of infection preceding the palmar eruption of those giving positive histories ranged from eighteen months to twenty years, only four being under six years, while seven were infected over nine years before. The duration of the lesions ranged from a few days to five years; only three of the nineteen patients had their trouble less than three months, while with ten of them it had been present for over six months. With twelve of the patients the palmar lesions were unilateral, ten having the right palm involved and only two the left. This preference for the right palm was interesting. Most people are right-handed, and being so, the right hand would be more exposed to injury than the left, and syphilitic lesions are well known to follow blows and other injuries. No notes were, however, made as to whether the patients were right or left-handed. With seven patients the eruption was bilateral, and of these seven, six had other lesions on the body, four having the soles affected. One of them had had other lesions fairly recently. Six of the twelve unilateral cases were of the palm only, and six had lesions elsewhere, the soles being affected in three instances. In fact the soles were involved in seven of the nineteen cases. The Wassermann test was made in nine of the cases, and two of the nine were negative, though the two that gave negative Wassermann tests yielded rapidly to salvarsan. Salvarsan was administered in ten of the cases, and proved successful in eight, and partially successful in the remaining two. The palms of one of these two cleared up, but there was later a circinate eruption on the back of the hands, that yielded to other specific treatment. In the other one of these two all of the lesions elsewhere on the body, of which there were a number, including both soles, vanished; the lesion on the hand was greatly improved, and became of an entirely different character some time after the injection. It presented in every respect, when seen later, the typical picture of a palmar eczema. This was one of the two cases that gave a negative Wassermann. It is our opinion that the palmar lesion was a mixed one of syphilis and eczema. As far as we can learn, nine of the ten cases that were given salvarsan have remained well, while the remaining one associated, as above stated, with eczema, cleared up only as far as the syphilitic

disease was concerned. This patient, when seen quite recently, still had her eczema. The ordinary history of syphilitic palmar lesions under any other specific treatment than salvarsan is that of either marked persistence or constant recurrence, and these lesions previous to the introduction of salvarsan were among the most desperately tantalizing conditions we were called upon to treat. Thirteen of the nineteen luetic patients complained of physical discomfort to a lesser or greater extent. Notes on this point were not made on the records of the other six. A number complained of a mental unrest, their thoughts revolving around the palmar lesion to a poignant degree, and attaining in some instances to suicidal mania. Two complained of severe itching; the symptoms of one of these two faded away completely under salvarsan, while the other patient was the one that presented the typical picture of eczema after the syphilitic portion of her trouble had been cleared up by salvarsan.

The Eczema Cases.

Of the sixty-four cases of eczema twenty-eight were males and thirty-six were females. Here we are confronted with a preponderance of females over males, and in a disease that forces patients to apply for treatment, this cannot be altogether attributed to the greater inclination women show to seeking medical advice. This again, as in syphilis, would look as if there were some relatively greater inclination for eczema to localize itself in the palms of women. In forty-nine patients (76.56%) there was bilateral involvement, and in fifteen, unilateral. Of the unilateral cases ten were of the right and five of the left palm. In thirty-seven the palmar eruption was associated with lesions elsewhere, the soles being affected in nine instances. Itching was more or less marked in fifty-three (82.81%) of the sixty-four cases, while tenderness or pain was present in thirty-one. There was infiltration in twenty-nine of the number, and in eight of these it was deep with deep fissuring. The eruption ranged in duration from a few days to a number of years. Recurrences were common in many. Fifty-two patients (81.25%) gave a history of having had eruptions lasting months or years. In two of the sixty-four cases the lesions may have been syphilitic, and were recorded as doubtful. In another instance the eruption resembled a circinate syphilide of the right palm. It had been present two years, and had, before the patient consulted us, resisted syphilitic treatment. The eruption disappeared entirely under X-ray exposures, and had remained well more than two years.

The Psoriasis Cases.

Though psoriasis of the palms is generally considered rare it is not unusually so. The nineteen cases we have seen since April 1906, were among two hundred and thirteen cases of psoriasis, nearly nine per cent. Of more interest is the rareness with which it involves the palms alone. In our series there were four such, or less than two per cent. Of these four, two were unilateral and two

bilateral. None complained of marked discomfort. Anticipating a question we would say that at any rate not all of these four were incorrect diagnoses. So far as we know none was positively so, though one of the four patients, a woman with a bilateral palmar lesion, which we diagnosed as psoriasis, recovered from this affliction, and returned several years later with a definite, multiple, small gummatous ulceration of the nose, which readily cleared up under specific treatment. In this case the palmar lesions were probably specific. Such an error in diagnosis can generally be avoided at the present time through the Wassermann test. One particularly interesting psoriatic patient, but not one of the four with the palms alone affected, was a man with the palms and soles involved. His eruption cleared up under treatment for psoriasis at different times during seven years. He returned more recently with circinate lesions of the palms, which looked exactly like syphilis, but there were patches of typical psoriasis scattered over other parts of the body. With all evidence of syphilis in this case negative, it is only fair to conclude that his palmar lesions were due to psoriasis.

Remarks on Syphilis of the Palm.

The late palmar syphilide is a most persistent chronic lesion. It is usually unilateral and often isolated, but in our cases was more frequently associated with other syphilitic lesions. Generally when first seen it is of a circinate form, and begins as a small spot that clears in the center as it spreads, forming a ring. The rings are generally imperfect, part of their borders healing during the spreading process, leaving but little scarring, much less than in other late luetic lesions. The outer edges are, as a rule, firmly and deeply infiltrated, making the sharply marked borders even more distinct. These borders may be covered with dirty white, closely adherent flakes of desquamation. Sometimes there is only one circinate area, but more often there are several, and in spreading these areas converge, forming a typical gyrate figure, which is very characteristic. Fissuring in the natural creases similar to that occurring in eczema is not uncommon. Tenderness is generally a marked feature, and it may be so pronounced as to render the hand almost useless.

Besides this deeply infiltrated form there is a more superficial squamous syphilide. Its substratum is a diffuse syphilitic infiltration in the papillary layer of the skin, that may be clinically imperceptible, or at least unobtrusive, and this causes patchy desquamation of the superposed epithelium. Such a patch may correspond to the entire volar surface of the palm and digits, and may exactly resemble a chronic squamous eczema.

Remarks on Eczema of the Palm.

Eczema is a disease due to a toxemia, and is accordingly by far more mobile than a syphilide, which is a localized microbic disease. The pathology of eczema, therefore, forms a marked contrast in its fundamental nature to that of cutaneous syphilis. Eczema is an exudative disease, the

principal seat of activity being in the papillary layer. As the disease is toxic and exudative the fluctuations of the symptoms may be very sharp. The exudation from the blood vessels is serum that frequently accumulates in the rete mucosum as droplets or vesicles. These vesicles as seen through the thick horny layer of the palm have the translucent appearance of boiled sago grains. In the intervals between acute attacks, or when the products of epithelial desquamation heap up on the palm these vesicles may not be visible. Those cases of herpetic or neurotic eczema occurring as sudden outbursts of itchy groups of vesicles or papules, in either case often excoriated, show plainly their exudative nature, and their diagnosis is easy.

Eczema of the palms is more apt to be bilateral than a syphilide. It is more diffuse and less sharply outlined, is generally attended by more fissuring, and almost always by more itching. Although many authorities state that there is more infiltration in a syphilitic lesion, Hardaway and Grindon claim that squamous eczema of the palms usually presents the greater infiltration.¹ And undoubtedly they are right in quite a large number of cases. As before stated eight of our sixty-four cases of eczema presented deep infiltration. Walker explains clearly why palmar eczema may acquire this special character. The well developed horny layer is resistant to the exudation, preventing its ready access to the surface, and causing it to diffuse through the layers of the skin, later resulting in desquamation of thick flakes, leaving a thickened sodden base.² This sodden base easily fissures quite deeply in the natural folds, and the fissures become extremely painful.

Remarks on Psoriasis of the Palms.

Psoriasis is decidedly a desquamative disease as contrasted with eczema which is fundamentally exudative, and syphilis, which is microbic of the connective tissue. The old controversies over psoriasis are enlightening in this respect where the discussions hinged on whether psoriasis was primarily a desquamation that later became inflammatory, or whether the first symptom was redness due to inflammatory reaction in the blood vessels of the papillary layer. It is now settled that the first changes are those of inflammatory reaction in the papillary blood vessels, but nevertheless the chief feature of psoriasis is desquamation, as contrasted in eczema with serous exudation.

Because of the special characteristics of the horny layer of the palms, psoriasis in this situation differs from psoriasis elsewhere on the body. It may be as diffuse as eczema with less infiltration, but is frequently of a patchy distribution, and does not usually have the infiltrated edge found in syphilis of the palm. There is less itching than in eczema, and, as a rule, less discomfort than in either syphilis or eczema. It can most frequently be diagnosed by the presence of patches of psoriasis elsewhere.

¹ Hardaway and Grindon, *Cutaneous Therapeutics*, pp. 292-3.

² Norman Walker, M. D., *Introduction to Dermatology*, 3d ed., pp. 124-5.

The Wassermann Test.

The Wassermann test is an aid, though not an absolutely reliable one, in the diagnosis of syphilitic disease of the palm. We had two striking instances of rapid recovery under salvarsan in patients with negative Wassermann tests. One must also be on the alert for the opposite; a squamous disease of the palm is not necessarily syphilitic simply because a Wassermann is positive.

The following is an example of how contradictory clinical evidence in these cases may be. A man, forty-eight years of age, consulted us in regard to a squamous lesion on the right palm that had been diagnosed as a syphilide, and furthermore he had with him a report of a positive Wassermann. There was no venereal history. A consideration of the case led us to believe it to be an eczema, and the condition cleared up under treatment so directed. Over a year later he came in with a hard chancre, and in its serum many spirochaetae were found. The positive Wassermann must have been an error.

Conclusions.

From our observation we would conclude that eczema of the palm is more than three times as common as either syphilis or psoriasis. According to our experience a syphilide of the palm may be a superficial desquamating lesion, with no more evidence of infiltration than a superficial eczema. In fact excessive infiltration is more frequently met with in eczema than in syphilis. All these diseases may fissure deeply, though syphilis and eczema are more apt to do so than psoriasis. The presence of itching does not exclude syphilis of the palm, nor does a negative history or a negative Wassermann. The proportion of cases where the soles and palms are both affected is greater in syphilis than in eczema. The characteristics of persistence or recurrence may be present in any of these diseases in this situation, though syphilis is more apt to be persistent, and eczema is more apt to disappear and to recur without treatment.

Given a marked squamous lesion of the palm whether unilateral or bilateral, which resists treatment for eczema, psoriasis or syphilis, when the latter is treated with mercury and the iodides, it is fair to conclude that it may be specific, particularly if it is a circinate lesion. If other syphilitic lesions are present on the body it will be easier to draw a conclusion, and a positive Wassermann will help. After making the diagnosis of syphilis, salvarsan or neo-salvarsan is without question the best treatment.

It must be conceded that the best diagnostician can mistake psoriasis of the palms for syphilis; and the same is true of eczema.

PARASITIC SKIN DISEASE IN CALIFORNIA.*

By ERNEST DWIGHT CHIPMAN, M. D., San Francisco.

The subject of this paper was chosen because: 1, parasitic skin diseases are definitely increasing in California; 2, many new forms are being recognized elsewhere which probably occur here; 3, the diagnosis of certain of the mycotic diseases is a matter of paramount importance not only in dermatology but in the entire field of medicine.

The increase referred to applies both to diseases due to animal parasites and those due to vegetable parasites. As an example of the former scabies has been frequently mentioned in the past few years and in the latter class ringworm is rapidly attaining the position of a commonplace while a decade ago it was comparatively rare in California.

The occurrence of quite a series of cases called by most California observers granuloma coccidioides, and originating in one circumscribed district, has presented a problem in mycology of especial interest to the practitioners of this state. The increasing number of diseases due to fungi reported in foreign countries as well as in other parts of this country leads not unnaturally to the supposition that unrecognized forms of mycotic disease exist here.

The importance of the subject to the general practitioner or the specialist in any department is shown by the following facts:

Coccidioidal granuloma may involve any organ of the body. Aspergillosis and mucormycosis may simulate pulmonary tuberculosis. Generalized mucormycosis of Paltauf resembles typhoid fever. Blastomycetic dermatitis may be taken for tuberculosis or epithelioma. Sporotrichosis is easily confused with tuberculosis, syphilis, pyogenic infection or glands.

So many diseases due to fungi present subcutaneous nodules as their most usual lesion that the methodical investigation by direct microscopic examination and cultures should be undertaken in any doubtful case.

In order to discuss clearly such a comprehensive title as parasitic skin diseases in California let us arrange the parasitic diseases by groups. They are naturally separated first of all into two divisions—animal and vegetable.

It is important that, the role of the animal parasite be recognized in the production of cutaneous lesions. The typical scabies eruption is, of course, characteristic but the urticarial reaction or the autographism which usually is manifest in subjects of scabies sometimes leads to error in diagnosis. The same reaction is seen in many individuals, especially children, who have been bitten by fleas, bedbugs, etc. In this case, though the diagnosis be urticaria or lichen urticatus, we must consider it merely as the reaction of the sensitized subject to the bite of the insect. A disease which looks like urticaria and acts like scabies was described by Schamberg as due to a mite found in the straw from certain fields not far from Philadelphia.

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* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

The investigation of an epidemic revealed the fact that each subject of this affection had been sleeping on a mattress stuffed with the straw from this district. No case of this sort has been reported in California though it is not insupposable that we may encounter it in the future as an imported disease. Another parasite of probably similar nature is the *Leptus autumnalis* or harvest bug. Although so far as I know no cases have been recorded in California I feel confident that this parasite is responsible for a series of cases I have seen occurring annually in July in Marin County. As Crocker describes it the animal bores its head into the skin, producing bright red papules and wheals which itch violently. It usually attacks the ankles and legs first but may spread to other parts of the body. It is seen chiefly in July and August in people who have been in the fields or among gooseberry and currant bushes, etc.

Ixodes or wood ticks are particularly well known in this state. Their importance to the dermatologist lies in the fact that once they have bored into the skin with their probosces they should not be forcibly removed as in that event the probosces will be broken off and remain in the tissues where they become encysted and leave little tumors which may be annoying and painful. The application of an essential oil, turpentine or a red hot needle will kill the parasite, and when it falls off, which may not be for a day or two, the probosces will not be left in the skin.

The various forms of pediculi scarcely call for more than mention.

It is in connection with diseases due to vegetable parasites or, more strictly, fungi, that the most interesting questions arise.

Vegetable parasites are divided into two main groups, viz: those dividing by fission, i. e., bacteria, and the group of hyphomycetes or true fungi. In this latter group we find: Favus, Ringworm, Tinea Versicolor, Erythrasma, Mycetoma or Madura foot, Actinomycosis, Blastomycosis and Granuloma coccidioides, Sporotrichosis and several others, especially tropical diseases as Pinta, Tinea imbricata, etc.

Concerning favus in California it may be said that it exists here only as a rare imported disease. Personally I have seen but one case in this state. Certainly it has not become established here. If we reason by analogy, however, we may expect its advent as the state becomes more thickly settled and immigration from European countries where it is prevalent becomes more easy through the Panama Canal. Curiously enough, however, the disease seems to exhibit certain geographic predilections. In England it is extremely rare, occurring only once in two thousand dermatologic cases of Crocker's series, while it is relatively common in Scotland, occurring thirty-one times in a like number of McCall Anderson's cases.

Inasmuch as ringworm is the exclusive subject of the paper to follow, only a passing reference will be made to that disease. It has already been noted that each year shows an increasing percentage of trichophytic disease. The point which will bear

constant reiteration is the matter of diagnosis, particularly in scalp ringworm. The usual error does not consist in mistaking a ringworm for something else but in mistaking something else for ringworm. The natural mistake is to consider any annular or circinate lesion as ringworm, whereas many other eruptions take on this configuration. On the body syphilis, seborrheic eczema, lichen planus, psoriasis, erythema multiforme and still others may show the same general outline as ringworm. On the scalp the more common failure is to confuse an alopecia areata or a post impetiginous alopecia for ringworm.

Tinea versicolor and erythrasma may both be passed on the ground that they have no special significance in this state. Both are easy of recognition and cure.

There remains a group of mycotic diseases of prime importance—a group consisting of 1, Actinomycosis; 2, Madura foot or Mycetoma; 3, Blastomycosis; 4, Coccidioidal granuloma, and 5, Sporotrichosis. Actinomycosis and mycetoma belong naturally together as do blastomycetic dermatitis and coccidioidal granuloma. Actinomycosis affects the skin in only a small percentage of cases most often attacking deeper tissues, while mycetoma originates and remains as a localized skin disease. Yet both are due to forms of the ray fungus.

By a curious analogy blastomycetic dermatitis and granuloma coccidioides both result from the same or a closely related organism, yet the former shows a greater tendency to remain localized in the skin while the latter exhibits a marked predilection for the internal organs.

Owing to the great confusion of classification it has been extremely difficult to understand the exact relation which many of the fungus diseases bear to one another. New parasites have been described without establishing or disproving their identity with previously recorded parasites. Much progress has been made by French writers in the matter of classification particularly by de Beurmann and Gougerot. For example blastomycetic dermatitis and granuloma coccidioides are placed under one general head as zymomonetoses, a name chosen because it signifies yeast forms and mycelial forms which the organisms of both of these diseases exhibit. This shows their general relationship while admitting their variations in reproduction and clinical forms. The same is true of actinomycosis, Madura foot and other forms of mycotic disease grouped under the general name of oösporoses, nocardoses, discomycoses or streptothricoses.

The diagnosis of either actinomycosis or coccidioidal infection can be made by direct examination of the secretion; the diagnosis of sporotrichosis is more easily made from cultures. In actinomycosis, however, we have to do with a disease in which frequently the lesions are not cutaneous but visceral and to obtain secretion for examination is not feasible. In such cases the method of sporoglutination of Widal and Abrami facilitates the diagnosis. Abrami, Brissaud and Joltrain have shown that an antiactinomycotic serum can be obtained which should be of value in treatment.

It is not within the scope of this paper to enter extensively into every fungus disease, the purpose being rather for the most part to generalize, only emphasizing a few salient points. Two of these mycotic diseases are worthy of rather special attention, however—coccidioidal infection from its occurrence only within this state and sporotrichosis because it is of relatively recent discovery. One can not escape the conviction that if one fungus disease thrives in this climate the conditions must be equally favorable for others.

As necessary precedent to the discussion of granuloma coccidioides it must be first of all stated that outside of California the view is very largely held that blastomycetic dermatitis and coccidioidal infection are identical or at least different forms of the same disease. De Beurmann and Gougerot classify them together under the name *zymonematoses* from the fact that they exhibit both yeast and filamentous forms. In admitting various types they state that many authors do not yet know whether it is necessary to distinguish them from one another or to unite them.

Certainly the disease as seen in California differs definitely from the ordinary blastomycetic dermatitis both clinically and in the laboratory. Clinically, according to Hektoen the nodules of coccidioidal granuloma bear a closer resemblance to the typical specific tubercle than the nodules of blastomycosis. Furthermore, there is a marked tendency toward the involvement of lymph nodes in coccidioidal granuloma while in blastomycosis this is slight.

In blastomycosis also the primary focus is nearly always in the skin with slight tendency to become generalized while in coccidioidal granuloma there is most often generalization. According to Ophüls the microscopic appearances differ in that the blastomycetic fungus multiplies by budding while the coccidioidal organisms multiply by endogenous sporulation. There are also certain differences of appearance on artificial culture media. It has further been urged as a mark of differentiation that iodide of potassium caused improvement in blastomycetic dermatitis and not in coccidioidal granuloma. A recent observation of my own, to be referred to presently, tends to deny that assertion. In any event there would seem to be some ground for considering the two affections as distinct entities, both from the clinical and the laboratory standpoint, even though their respective parasites belong under the same general botanic head.

At the present time eighteen cases of coccidioidal infection have been reported in California, nearly all of which occurred in men from the San Joaquin Valley. Since the report of the eighteenth case by Bowles in December, 1912, I have heard of several and have myself treated one unreported case. The number of reported cases probably does not give quite a true index of its occurrence.

The case recently observed by me will be reported later in detail. The points which may be touched on at this time are as follows: The patient was a male twenty-eight years of age who had lived in the San Joaquin Valley for two and

a half years. The lesion occurred on the left side of the nose and was the size of a half dollar when I first saw the case in October, 1912. It had attained this size in two months. It was irregularly circinate in form, elevated possibly a quarter of an inch, nodular, infiltrated and covered here and there with minute, superficial abscesses. Clinically it resembled an hypertrophic lupus. Subjectively it was painful, tender and extremely intolerant of any external application save the mildest boric ointment. Examination of smears showed doubly contoured yeast like cells which I considered blastomyces. In seeking confirmation from Dr. Ophüls I received a report calling the organisms coccidioidal fungi. Subsequent studies of smears and cultures as well as a comparison of the cases reported in California with those of blastomycosis elsewhere leads me to the conclusion that our California observers are correct in giving a separate place to the form of disease which occurs here.

The important diagnostic differentiation required in my case was between lupus, syphilis and coccidioidal granuloma. Lupus could be excluded by its rapid evolution. As between syphilis and coccidioidal granuloma the minute superficial abscesses argued for the latter and the diagnosis was established by the microscope.

Sporotrichosis, a disease which has only been recognized within recent years, has not yet, so far as I know, been reported in California. Nevertheless our experience with other parasitic diseases tends to demonstrate the fact that once introduced the diseases of fungus character find conditions favorable for their development.

Sporotrichosis is not more than coccidioidal infection or actinomycosis exclusively a skin disease. It involves lymphatics, mucous membranes, eyes, ears, joints, muscles and viscera. It presents a wide variety of clinical forms. The cutaneous lesions are most often gummatous in form, attacking, therefore, the subcutaneous tissues at first and later extending to the surface. Both localized and disseminate forms are described. The localized form begins with an initial lesion at the point of inoculation following which the lymphatics become involved and present indurated lines punctuated along their course by small, gummatous nodules. Adenitis may be observed but is not constant. The initial lesion may be the only sign presented or, in other cases, it may be overlooked and only the gummatous lymphangitis observed.

The disseminate form may be nodular or ulcerated. Sometimes both forms exist at the same time. The nodular form develops insidiously. The lesions are often discovered by chance and usually are from five to twenty-five in number, though occasionally they may exceed a hundred. Beginning as small, round, hard, movable nodules they are confined to the subcutaneous tissues. Slowly enlarging they reach a diameter of twenty or thirty millimeters with the overlying skin adherent. Attaining their maximum growth in about four weeks they then undergo a softening which eventuates in something quite like a cold abscess. This presents a central depression with a surrounding

resistant zone which, if the contents are evacuated, persists as an indurated ring. Ulcerations rarely supervene unless the abscess is incised. An astonishing feature is that large numbers of such lesions may exist with scarcely any effect upon the general health.

The ulcerated forms go through similar stages but ulcerate more or less rapidly. Often the ulcers begin as narrow, fistulous openings. The edges are ragged and the aspect may closely resemble a tuberculous ulcer. The clinical diagnosis is made by the contrast between the great number of lesions and the good general health of the subject, the onset with indurated nodes which slowly progress to suppuration, by the irregular borders which may cover the cavity in which pus accumulates, by the narrowness of the ulcer in contrast with the extent of the gummatous infiltration, by the coexistence of several openings from the same gumma with the persistence between two ulcers of a fine bridge of violaceous skin, by the facility of auto inoculation and by the usual absence of adenopathy.

The diagnosis by direct microscopic examination of pus is possible but difficult. Much easier is the diagnosis by cultural methods for the cold culture on Sabouraud's special medium gives a characteristic growth.

THROMBOSIS OF THE LATERAL SINUS WITH REPORT OF FIVE CASES.*

By CULLEN F. WELTY, M. D., San Francisco.

In a report of five cases of sinus thrombosis, it will be interesting to note that it covers a series of 300 mastoid operations. This fact alone should attract your attention, because this small percentage of operated cases had sinus thrombosis, or were followed by the same. The reason for this is that serious complications were not allowed to develop under the guise of conservatism. Cases were operated early, and the more serious complications avoided.

Three cases of sinus thrombosis were from acute suppurative otitis media in a series of 100 acute mastoid operations.

Two of the cases were from chronic suppurative otitis media in a series of 200 radical mastoid operations.

So you can readily understand that you are much more liable to the more serious infections in acute otitis media than in the chronic cases because of the immunity that is established by the chronic process.

You will not find recorded in the literature such a small percentage in a series of operated cases—and the reasons are quite obvious.

Another very important fact and probably the most important, the cases all recovered. The recovery was not dependent upon delay, coming to a conclusion based upon bacteriological examination or other procedures that have assumed an important role in diagnosis, but upon more mature surgical judgment. At times, it may be necessary

to uncover the sinus, or open the sinus. Such surgical interference in my hands has never been followed by infection; while I am doubly sure that delay will cost your patient more serious trouble.

Case I. S., male, 75 years of age. Medical history by Dr. H. C. Moffitt. Father and mother died in old age. Mother at 70 from malaria. No severe sickness in family. Patient has always been well. No pneumonia or typhoid. Was in the army and had a sword wound in the left parietal. Had had malaria. Denies specific history. Five months ago had acute suppurative otitis of the left ear. Has had headache over this side of the head ever since. At times it is very severe. The severe spells come every third day and are increasing in severity. Pain only on this side of the head. Memory failing. Hearing gone in left ear. Pain in left occiput running down neck. Appetite is poor at times due to nausea. Has no vomiting spells. Bowels regular, urine negative. Has noted laryngeal cough from fluid discharged in the pharynx. Has no dizziness. Has lost forty pounds in four months. Tenderness at back of neck when pain is felt. Has had to take morphine constantly for the last two months. No temperature or chills.

Examination: Pale, emaciated, evidently in much pain. Holds head stiff. Cannot bend it forward without much pain. Tenderness over the upper three vertebrae. A little swelling a little to the left of the upper three vertebrae as well as back of the mastoid. Most tender between mastoid and vertebrae and on deep pressure is felt a swelling that feels partly periosteal and partly of the soft parts. Along the anterior and the posterior borders of the mastoid, are glands dwindling from above downward; the largest, the size of a bean, somewhat tender. Pain along left jugular, but no tenderness. Pulse in jugular. Pupils small from morphine, but react to light and accommodation. No nystagmus. Fundus not examined. Skull not tender. No facial nor trigeminus. No change in reflexes. No swelling of vertebrae from the mouth. Examination of the nasal pharynx leads to discharge of a considerable quantity of pus.

Probable diagnosis: Extra dural abscess; sarcoma in the posterior fossa; necrosis of the Atlas or a sinus affection.

Ear examination by myself: The ear stands out from the temporal bone more than the ear on the opposite side. This ear is hot in comparison with the ear on the opposite side. Some swelling of the mastoid but particularly back of the mastoid. Sensitive over the whole of the mastoid, but especially back of the mastoid. Some pain down the side of the neck. The pus is small in quantity and very offensive. There is decided bulging of the posterior superior wall. A small perforation in the tympanic membrane. Weber in bad ear. Schwabach lengthened. Speech on contact in this ear.

September 15, 1915, radical operation. Started to do the operation for acute mastoiditis; however. I changed it into a radical operation, because the pathologic findings were so extensive that I thought it could not be thoroughly removed without the latter procedure. Pus under the periosteum. The perforation was near the tip of the mastoid. On the removal of bone, pus and granulation tissue welled into the cavity uncovered. The individual cells were largely destroyed and instead a large cavity was present. In curetting away the granulation tissue, I suddenly encountered more pus under considerable tension. After further curettement, I was able to demonstrate that this latter pus was in the sinus and separated from the pus in the mastoid by granulation tissue. I curetted the jugular end of the sinus as far as my curette would go and packed with iodoform

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gauze. The other end of the sinus was nicely sealed and the patient had no symptoms of pus infection, so the clot was not disturbed. The jugular was not ligated for the same reason. The only explanation that can be offered for this is that of a pneumococcus infection. Docent Dr. Alexander of Vienna reports a similar case about two years ago, saying that he had made a thorough search of the literature and was unable to find a similar case on record.

The patient made an uninterrupted recovery. He did not have any chill, fever or sweat during his illness.

Case II. Male, age 33, machinist by occupation. Had ordinary diseases of childhood. Has never been ill that he can remember. On January 21, 1907, was slightly under the influence of alcohol, fell striking the back of his head. Says that he was somewhat dazed for a time and noted that he had a discharge of blood from the right ear. The following day noted a serous discharge from the ear and that it was tinged with blood. Also that he could not hear as well from this ear as formerly. Three days following the injury had a chill and some fever. Some pain in the ear and some pain in the mastoid region. This subsided gradually during the course of ten days. He returned to work for a short time, when he again had pain and tenderness back of the ear. Stopped work for three or four days and again felt quite well. This fever, pain and tenderness has continued uninterruptedly for the last six weeks. Three days following the accident pus began to discharge from the ear and it has continued up to the present time and is of very offensive odor. There has always been more or less pain confined to this side of the head, at times much more intense. Of late the pain is increasing in severity and occurring much more frequently. For some days past, says he has had fever. No chills or chilly sensations.

Ear examination: No swelling of the soft parts about the mastoid. No increased surface temperature. Slight tenderness over the whole of the temporal bone. Very sensitive over the tip of the mastoid. There is an offensive discharge from the small perforation below the end of the hammer. The tympanic membrane was bulging to such an extent that the landmarks were completely obliterated. The bulging of the posterior superior wall was so marked that it helped to obliterate the membrane. Temperature 102.5°, pulse 110. Operation recommended.

As the following day was Sunday, we did not operate until Monday, his temperature remaining near 103° the whole of the time.

Acute mastoid operation. Nothing of note on removal of the periosteum. After removing the outer shell of the mastoid, a blood clot was found that was partly broken down and intermingled with pus. The clot began back of the posterior osseous wall of the meatus, extending horizontally across the mastoid to the wall of the sigmoid sinus. On the removal of the blood clot, granulations, tissue and pus, the fracture could be traced through the posterior osseous wall of the meatus, crossing the mastoid, fracturing and uplifting that part of the mastoid that covers the sinus; between the sinus and the broken bone there was pus and new organized connective tissue covering part of the sinus wall. The sinus was uncovered until it appeared perfectly healthy. There was pulsation in the sinus and it was compressible. The balance of the mastoid cells and the cancellous tissue was removed and the antrum opened freely and the operation completed.

The temperature did not drop as was expected. Wound dressed the second day following operation. No pus in the external meatus. Everything looking well in the mastoid wound. The third day the temperature remained about the same. I

decided the sinus should be explored the following morning. When I called on the fourth day, the temperature had fallen considerably and the patient was feeling comfortable. I decided to postpone further operative procedure. In less than half an hour after my visit, the patient had a chill and the temperature went to 104°. During the fifth day, the patient began to experience pain in the right knee, which was bandaged and hot applications applied. The following day, six days after first operation, I decided to open the sinus. The new granulation tissue was curetted away; all parts made clean as possible; pulsation could be felt in the sinus. Besides, it was compressible. There was no pain along the jugular at any time. The lateral sinus was freely incised. The proximal end on the sinus did not bleed as much as the distal end. At any rate I concluded that there was a partial thrombus and I curetted and packed with iodoform gauze. The distal end was plugged without curettage. The jugular was ligated and the operation completed. The following day the patient had a chill and a temperature of 104°. The same day the knee was punctured and the secretion showed to contain a pure culture of streptococcus. The knee was freely opened the same day. There was considerable bloody pus found. There was a decided fall in temperature that followed this operation, followed by another rise in the temperature about two days following this knee operation. I account for this by the fact that the mastoid wound had not been dressed for three days. There was a gradual fall following this dressing.

Dr. Alvarez has done some bacteriological work for me on this case, of which I wish to speak, and has furnished me with the following data: Arneith and others have recently been studying the polymorphonuclear neutrophils and find that the number of nuclei vary considerably under different conditions and in different diseases. There are five classes of cells, with one, two, three, four and five nuclei respectively; the percentage of the classes and the average number of nuclei to a cell vary. Normally the count varies only slightly from the following:

I	II	III	IV	V
5	35	41	17	2

Average number per cell, 2.76.

The polymorphonuclear neutrophils are supposed to develop from a small cell with single oval nucleus. A few of these are normally found in the blood. The older the cell presumably the more nuclei it has, and the older cells are supposed to be most active in the phagocytosis. If this be true, a large percentage of multinucleate cells would give a good prognosis, as the person should be more resistant to infections. This seems to be borne out clinically, but an immense amount of research must yet be done. A bad prognosis might have been given in Dr. Welty's case with pus and streptococci in the knee joints, but the differential neutrophile count showed the following percentages:

I	II	III	IV	V
4	24	34	25	13

Average number, 3.19.

As the average number seldom goes over three, the prognosis for this count was good. This was borne out subsequently. Probably the circulating streptococci had been destroyed very quickly.

Case III. Male. Age 32. Discharge from left ear since childhood. Has had pain back of the ear quite a number of times. Never so severe as at the present time. This pain began about three days ago and has been increasing in severity from day to day. With each attack of pain has had more or less vertigo; during this last attack there is so much vertigo that at times he must assume the recumbent position.

Three days ago had a severe chill and perspired

ireely following; had a second chill that day. Took heavy doses of quinine on the advice of his doctor; following day much better, very little pain, no vertigo. Following day or the third day of this attack, had another chill, temperature and perspiration. He was operated late that evening.

Operative findings: Large pneumatic mastoid, large individual cells had all been destroyed, the tip of the mastoid had been perforated. The dura of the posterior fossa was uncovered by caries and looked healthy. The wall of the sinus was covered by large granulations. The granulations were cut away with a scissor.

The usual plastic, wound left open for further observation. The following day had a temperature of 105.2°, and a chill that was very severe. This same evening he was again anesthetized, the jugular ligated and a long incision made in the sinus; there was a well organized clot that seemed to have areas that were broken down, and in such places there was a sero-sanguinous pus present.

It was difficult to get bleeding from the proximal end, because the clot extended so deep, and from the fact that the jugular was ligated from below, so the only bleeding that could come would be from the superior petrosal. In many instances this vein carries a thrombus. After persisting for some time there was free bleeding. The clot in distal end was destroyed at once. After tamponing either end very completely that part of the sinus that was incised was examined carefully. There was an ulcerating area, the size of a silver five-cent piece; this was curetted very carefully, packed with iodoform gauze. Packing remained in four days. The following day the temperature fell to normal and remained so. In 12 weeks the patient had entirely recovered, with a useful ear.

Case V. Male, age 22. Discharge from ear since childhood. Two years ago began to have spells that were likened to "petit-mal"; these continued with increasing severity until eight weeks ago, when he developed "grand-mal." During the last eight weeks he has had these attacks, frequently will be unconscious, and at times confined to his bed from 12 to 24 hours.

Examination: Foul offensive discharge—masses of epidermis protruding from the rather large perforation of the attic wall; nystagmus to opposite side. Labyrinth, intact, hypersensitive to caloric reaction.

Conclusions: The attacks spoken of were none other than mild attacks of vertigo to start with, which increased as the caries progressed, producing the intense attacks of vertigo in which he would lose consciousness. When we introduced cold water into the ear he had an intense reaction. I asked him at the time if it was similar to those which he had experienced; he said it was, only the attacks were much more severe.

Deductions: That he had a fistula of the horizontal semi-circular canal. There was no fistula symptom.

Operative findings: The sinus was uncovered by the first stroke of the chisel, the attic and antral wall covering the cura were largely destroyed by caries so that the dura was uncovered from in front, the entire middle fossa, posterior fossa and the whole of the sinus. There was no fistula of the horizontal canal, but caries extended deep into the petrous portion of the bone. Grafts were applied over bone surface only, and wound closed in the usual manner.

First day after operation, some temperature; second day, more temperature; fourth day after operation, temperature, 102.4°. Thought the change of dressing would reduce temperature; fifth day after operation, temperature 103.2°, and a chill; sixth day, temperature 104.2°.

The following morning opened the lateral sinus, finding a small mural clot. The jugular was not

ligated because the clot was small and confined to a definite area of the sinus. The patient has not had any temperature since. Made an uninterrupted recovery.

Case IV. Male, age 20. Five weeks ago had acute otitis; pain more or less severe, which lasted for about two weeks. The ear continued to discharge but gave him no pain for the following week. For the past week he has had pain on this side of the head, and in the back of the head. Two days ago had his first attack of vertigo. To-day has more or less vertigo all the time. Has had no chill or temperature that he noticed.

Examination: Patient looks septic; no fever, slight facial paralysis, pupils react to light and accommodation. Spontaneous nystagmus to the opposite side. Painful on superficial pressure on this side of the head, more so over tip and back of same. Meatus almost swollen shut, foul offensive discharge, bleeding granulations, labyrinth intact.

Operative findings: Large pneumatic mastoid, all broken down, sinus uncovered by caries and bathed in pus. A dark colored spot the size of a silver five-cent piece presented. Incision was made in the sinus at this place and a large clot removed, only after curetting at some distance from either end did I encounter free bleeding. Both ends were well packed with iodoform gauze. Uninterrupted recovery.

In this series of five cases, we find that two are the outcome of chronic suppurative otitis media, and three follow acute suppurative otitis media.

Naturally, the first thing to attract your attention is the fact that all the cases had been neglected, or rather allowed to go along until the more serious symptoms presented. Had either one or all of them been operated when they should have been, they would not have had these serious complications.

In the case with an embolus to the knee joint this latter condition was produced by delay in further operative procedure. This man would be free from temperature for as much as 48 hours at a stretch. The time of operation was fixed on two different occasions and was delayed because the patient was apparently in such good condition. He was finally operated; a few days following operation, thrombus to the knee. This was punctured and then incised, some stiffness remaining. His temperature continued for some three weeks, dropping daily by a fraction of a degree. The reason for this was again the delayed operation. Under the guise of conservative ear surgery, the man's life was almost sacrificed. This was my first case. I am sure I will not be so remiss again.

The third case demonstrates good judgment in the surgical procedure. The only faulty part was that the sinus should have been uncovered, and if it did not look healthy should have been incised.

The first and fourth cases were very much alike—in this that they had no temperature or chill during their illness. In the first case, the sinus was in connection with the mastoid cavity, filled with fluid pus which was under considerable pressure. Either end of the sinus was sealed nicely, and as the patient was not suffering with a septic process, further interference was unnecessary.

In the fourth case, there was a dark discoloration of the sinus about the size of a silver five-cent piece. The sinus was incised, exposing the clot.

For the same reason as in the other case, the jugular was not ligated.

Some three years ago Ruttin of Vienna searched the literature for such cases, and was only able to collect seven. My two cases were not included. From the reported cases, we must conclude that it is a rare condition; however, I am of the opinion that many such go unrecognized. This latter statement is borne out by a former city coroner of San Francisco, who found several cases of healed sinus thrombosis, that had died of other causes. While what I have said I believe to be true, no ear surgeon of any experience whatsoever would have done less. Many would have ligated the jugular in all the cases. It is for this reason that I repeat these cases more or less in detail to show you why such a procedure is entirely uncalled for.

The fifth case is again unusual as was shown by the temperature curve, not until the day before operation could I conclude that it was a sinus thrombosis. In fact, from the temperature chart, one would think more of meningitis than of sinus thrombosis. Again, he had considerable edema about the ear that made it look very much like erysipelas; besides, the temperature was in keeping with erysipelas, until he had his chill and remission. The findings have been reported before.

Conclusions in regard to the case: I believe that there was a surgical injury of the dural wall covering the sinus, at the time of operation, and that from this injury the infection took place; this would be in keeping with the temperature chart—an increasing infection with daily increase of temperature. In a labyrinth operation I accidentally opened the sinus, but there were no ill effects. In three instances, I have incised the sinus for diagnostic purposes. In none of the cases did I have infection to follow.

The jugular was not ligated in this case because I discovered a small mural clot with free bleeding from either end, and again because the general infection was so slight that it would be taken care of in other ways. This again was clearly demonstrated by the temperature chart.

I believe that everything possible should be done for an individual case to establish a diagnosis beyond a question of doubt. At the same time; cases do present where delay would only produce further serious complications; which is well illustrated by the second case that was followed by embolus to the knee and a temperature that lasted for some three weeks. Had I been more firm in my convictions, I am confident the patient would have been spared many days of anxiety, besides an impaired knee joint.

The cases in question were so definite, precise and well established on the one side that further observation was entirely unnecessary; on the other side it is very serious to the life of the individual to delay if such is the case. I believe that in a given number of cases, one side worked out thoroughly from a bacteriological standpoint, the diagnosis established in this way will cost such a loss of time and more serious complications with greater

mortality, than by exposing the sinus and incising in suspected cases.

This is at variance with the best teaching of otology of to-day. Nevertheless, my belief is based upon actual observations which are very convincing.

THREE CASES OF PELLAGRA IN SAN FRANCISCO.

By JULES B. FRANKENHEIMER, M. D., San Francisco.

Five years ago, pellagra was a little known disease in the United States, today there are estimated about 60,000 cases. From an infected area in a group of Southeastern states the disease has spread to the North and to the West; in fact so far West that California must now acknowledge the disease within her boundaries.

In the CALIFORNIA STATE JOURNAL OF MEDICINE for November, 1912, Podstata and Willhite of Livermore have reported three cases of pellagra. The reader is referred to their paper for historic details, etc. While in these cases reported by Podstata and Willhite, the mental symptoms were a predominant feature; in the cases which the writer saw recently they were not so conspicuous. Therefore it seems justifiable to report these cases as showing a type of the disease in which the mental symptoms are not the most striking ones.

That the disease is increasing rather rapidly is evidenced by the fact that the writer within the last two months has seen two cases other than those here reported.

In order not to weary the reader with a too detailed history and physical examination, only those facts bearing on this disease will be noted. The mental condition of the patients has made it difficult to get accurate answers to tests in examining the nervous system.

S. P., a German, 50 years of age, sailor by occupation, came to the hospital on April 11, 1913, complaining of pains in the legs and ankles. His family history as to the disease under discussion is negative. Since 1897 he has resided in San Francisco, except during the time of his voyages to the Philippines in the transport service. He denies venereal disease.

Pellagrous Symptoms: At the time of entrance the dorsum of either hand was the seat of erythema which extended on to the wrist as far as the "cuff-line." On the bridge of the nose and extending on to the cheeks was a small, slight butterfly-shaped erythema. His tongue was reddened, particularly along the edges.

The condition of the reflexes was as follows:

Eyes react to light and accommodation.

Biceps and triceps jerks exaggerated.

Abdominal present.

Patellar exaggerated.

Achilles absent.

Babinski absent.

Mentally the patient was apathetic—there was no confusion.

The sensory changes were difficult to determine; there was an indefinite confusion of heat and cold on the abdomen and upper thighs. There was an indefinite hypalgesia on the legs.

T. R., an American, aet. 59 years, a sailor by occupation, came to the hospital on account of falling unconscious on the street. He resided in Virginia from the 18th to 20th year, and from that time until the present in San Francisco. He has been at sea a great deal, but the last three years have been spent as a longshoreman. His family

history is unimportant as to pellagra. Aside from the diseases of childhood he was well until his 18th year, when he had an attack of chills and fever. He fell on molten glass and burned his hands to the wrists. He has had three attacks of urethritis and one soft (?) chancre with no secondaries. As a result of indiscretions in diet he has had occasional attacks of nausea and vomiting. For some time has had pain in the region of his heart. The diagnosis of the heart condition is aortic and mitral insufficiency; arteriosclerosis.

Pellagrous Symptoms: The hands show a redness and desquamation of the dorsal surfaces extending from the metacarpo-phalangeal joints to the wrist line. There are patches on the arms, legs and in the supra-clavicular fossae that show desquamation of silvery scales. The tongue is furred; the edges are bright red.

Reflexes: The eyes react to light and accommodation.

Upper extremities present.

Abdominal doubtful.

Cremasteric present.

Patellar absent.

Achilles absent.

Sensory changes: Sensation to pain and temperature was found to be diminished over the inner and outer surfaces of the legs. The deep muscle sense was intact. There was no Romberg.

Mentally the patient showed a fair attention; his memory was poor, however, and he had an occasional mild hallucination and delusion.

J. C., an American, age 57 years, a sailor by occupation, came to the hospital on account of general weakness and pains in legs and chest. His family history is unimportant as to pellagra. He has visited, during his voyages, almost every country, residing in Boston until his 38th year and from then until the present in San Francisco. He suffered from amebic dysentery at 21 years in Calcutta. At 26 years he had typhoid in Boston; at 37 years, pneumonia. In Manila, at 52 years, he had an attack of chills and fever. He has had urethritis twice, but denies lues. During the last year has had attacks of nausea and vomiting—the last being three weeks ago.

Pellagrous Symptoms: Two months ago the backs of his hands looked as if they had been sunburned—at the present time the erythema has subsided and they are desquamating. The exposed surfaces of his skin are deeply pigmented and show desquamating symmetrical patches on the neck and in both supraorbital fossae. His hair is thin. There are scaly and desquamating patches of skin on his feet and legs. The tongue is furred and has bright red edges.

Reflexes: Eyes react to light and accommodation.

Upper extremities give a brisk reaction.

Abdominal present.

Patellar exaggerated.

Achilles absent.

On the right side the plantar response is not normal nor could one call it a typical Babinski.

Mentally the patient is dull and apathetic; he imagines he sees things at night.

Sensory changes are shown in diminished sensation to touch, pain and temperature on the mesial and lateral surfaces of the legs. Deep sensation and muscle sense are normal. There is no Romberg.

In all three of the cases ameba were found in the stools. The Wassermann reaction was negative in all: the blood in two cases, the cerebrospinal fluid in one case. The cerebrospinal fluid was examined and was found in each patient to contain no excess of cells, nor other deviation from the normal.

The examination of the blood showed a mod-

erate anemia in all the cases, with a high color index: 1.1 in one patient and 1.0 in another. There was no poikilocytosis; no parasites were found on repeated examination. The leukocytes ranged from 6400 to 9600; the leukocytic formula was not remarkable.

These cases appeared in the wards of the University of California Hospital in San Francisco. My thanks are due Dr. W. W. Kerr for permission to publish them.

DUCTLESS GLAND EXTRACTS IN RELATION TO EAR AFFECTIONS.*

By H. Y. McNAUGHT, M. D., San Francisco.

In a paper read before the San Francisco County Medical Society on October 22d, 1912, a preliminary report was made of the cases I had treated by ductless gland extracts for tinnitus aurium in the Ear, Nose and Throat Clinic, Medical Department of Stanford University. There is no apology to offer for the present consideration of this subject, for it is a condition which we are called on constantly to treat, only to feel at a loss, in the majority of cases, what to do. Our failure to cure or benefit such an apparently simple condition does not make for public confidence in our specialty.

I wish briefly to review the facts brought out in my former paper. H. O. Reik and Downey, in a report to the American Otological Society, stated that they believed one of the chief causes of tinnitus to be *low blood pressure*, and they used adrenalin as a pressure raising principle, apparently with good results in some cases. I found, as Reik did, that the blood pressure is usually low, often subnormal and seldom high in tinnitus aurium. It has been absolutely disproven, however, in my series of cases, that low blood pressure has any causative relation to tinnitus aurium. It is true that Reik and Downey had some cases improve under adrenalin, but that the results were due to the pressure raising effects is negated by the fact that administered as it was by mouth, it is useless for that purpose. Even intravenously the effects on pressure are very fugacious. The improvement, then, must have come from the circulation of the adrenalin in the blood, and not from its pressure raising effect. As final proof that low blood pressure has no relation to tinnitus aurium, we found many cases whose symptoms disappeared under thyroid medication. The blood pressure was taken at certain intervals and, though usually low to start with, was still lower when the symptoms had disappeared. If Reik's theory held true, the condition ought to have been made worse.

I am not going to inflict you with the countless theories regarding the mode of action of glandular extracts. We are only beginning to realize that in these substances we have agents which exercise a marvelous influence over bodily growth and metabolism. As yet their mode of action is largely unknown and consequently theories are plentiful.

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

One only I wish to refer to: Beebe, in an article in the *J. A. M. A.*, Mar. 4, 1911, says the action of thyroid seems chiefly to be "to detoxicate or render innocuous the metabolic toxins of the body; sensitiveness varies in different cases; it seems probable that it acts on most of the tissues of the body in part through the action of the nervous system." Again he says: "From the evidence which is now obtainable I think we must conclude that the thyroid gland forms a hormone, which may be present within wide limits in the condition we call health and which stimulates a variety of tissues to a physiologic and at times a pathologic degree of activity."

This, then, would make a good theoretical working basis: that tinnitus aurium can be caused by toxins irritating either the auditory centers or the cochlear nerve or its endings, and that such toxins may be produced by a lack of some one or more of the ductless gland secretions. We know cretin deafness to be a fact, and to be improved under thyroid. G. Bruhl, in a recent article says: "I have used the treatment myself and have supposed, after several successful cases, that there existed a connection between function, respective loss of function of the thyroid, and the organ of hearing." As yet the number of cases treated is too small to draw an absolute conclusion from, but the outlook is encouraging and ought to stimulate more research on the part of others.

I append a report of a series of cases and summary of same. In this series we used thyroid, para-thyroid and thymus gland extracts. The summary of results in this condition is difficult. Of course a "cured case," in the strict sense of the word, is one whose tinnitus has absolutely disappeared. That we can ever attain this result I doubt inasmuch as even normal persons have a certain degree of tinnitus at all times. In this summary I classified as "cured" those who had ceased to notice the tinnitus; as "practically cured" those who only noticed it slightly at times, often long intervals. The other terms will explain themselves.

There were 46 cases treated. Some of these failed to report after first visit, so the number observed was 33. I have classified these as—nerve lesions (9), otitis media chronica catarrhalis (14), tubo-tympanic catarrh (7), otosclerosis and chronic adhesive process (1), otitis media chronica purulenta (1), normal ear (1).

O. M. C. P.—no change.

O. M. C. G. 5 cured, 2 practically cured, 2 much improved, 2 taken off treatment, 2 slightly improved.

Leasio Auris Internis—2 cured, 1 practically cured, 2 much improved, 1 no change, 2 slight improvement.

Otosclerosis—7 no change.

Normal Ear—1 not improved.

Chronic Adhesive Process—1 slight improvement.

Tubo-Tympanic Catarrh—6 practically cured, 1 much improved.

We have made also some interesting observations on patients using this treatment. Many report improved hearing. A number exhibited before treatment signs of hypo-thyroidism, such as dry skin, harsh, dry hair. In no case was the weight lowered under thyroid or para-thyroid.

In conclusion, I would urge others in trying this treatment to exercise great care and judgment in the use of these powerful drugs and not use them indiscriminately, for they are as potent for harm as good when abused.

SOCIETY REPORT

MERCED COUNTY.

The Merced County Medical Society held a meeting October 2nd at the office of Dr. H. Kyberg, secretary, in the Shaffer building.

This being the first meeting after the summer vacation, an unusual interest and good attendance marked the session. Two new members were added to the roll—Dr. J. H. McClellan of Los Banos, and Dr. J. M. Hicks of Livingston.

A highly interesting and instructive paper on "Caesarean Section," with reports of two recent cases in his own practice, was ably presented by Dr. E. A. Julien of Turlock.

At 10 p. m. all repaired to a supper at the Hotel El Capitan. The Merced doctors are proud of the harmony and good fellowship existing among the members of the profession, which explains the large membership of this county society.

Other visitors from out of town were Dr. L. J. McClelland and Mrs. Dr. Sophia McClelland of Los Banos, and Drs. Jacobson and Julien of Turlock.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During August the following meetings were held in the rooms of the Society:

Medical Section, Tuesday, August 5, 1913.

1. Infantile Diarrhea Caused by Fresh Alfalfa Dairy Ration. Sanford Blum. Discussed by H. H. Yerington.

2. Some Physiological Factors in the Classification and Treatment of Heart and Kidney Lesions. Martin Fischer. Discussed by G. Adams and C. Quinan.

General Meeting, Tuesday, August 12, 1913.

1. Presentation of Three Cases of Pellagra. J. Frankenhimer. Discussed by J. D. Long and H. D'A. Power.

2. Some Practical Applications of Recent Advances in the Physiology of Digestion. W. C. Alvarez. Discussed by O. Zaicheck.

3. The Menace of Cancer. H. V. Hoffmann.

Surgical Section, Tuesday, August 19, 1913.

1. Case of Bronchial Asthma—Demonstration of Bronchoscopy. Henry Horn.

2. Demonstration of a Simple Ether Apparatus. Francis Williams.

3. Myxolipoma of the Knee Joint. Gilbert M. Barrett. Discussed by C. C. Crane and S. J. Hunkin.

4. Retroperitoneal Displacement of the Duodenum with Interesting Complications. L. W. Allen. Discussed by C. G. Levison and G. M. Barrett.

5. Nerve Injuries, with Report of Cases; Consideration of Nerve Regeneration. C. G. Levison. Discussed by J. H. Barbat and C. F. Welty.

**Eye, Ear, Nose and Throat Section, Tuesday,
August 28, 1913—4:30 p. m.**

1. Presentation of Specimen of Fibro-Sarcoma of Naso-Pharynx. H. Horn.
2. Case of Choroiditis of Right Eye, associated with Traumatism; Medico-Legal Importance of such Conditions. M. W. Fredricks.
3. Case of Vestibular Lesion with Ocular Manifestations. H. B. Graham.
4. Case of Paralysis of Left Abducens, Simulating Gradenigo Syndrome, but due to Specific Lesion. V. E. Lucchetti.
5. Description of Green Operation for Dacryocystitis. A. S. Green.

**PROCEEDINGS OF THE SAN FRANCISCO
COUNTY MEDICAL SOCIETY.**

During the month of September the following meetings were held:

Medical Section. Tuesday, September 2, 1913.

1. Some X-ray Demonstrations. H. E. Ruggles.
2. Photography in its Relation to the Medical Sciences. H. D'Arcy Power. Discussed by A. W. Lee.

Surgical Section. Tuesday, September 16, 1913.

1. Concerning Ununited Fractures. J. T. Watkins. Discussed by H. M. Sherman, L. Eloesser, C. C. Crane, A. M. Taylor and J. Rosenstirn.
2. Implantation of Joints. L. Eloesser. Discussed by J. Rosenstirn, H. M. Sherman and S. L. Haas.

**Eye, Ear, Nose and Throat Section. Tuesday,
September 23, 1913.**

1. Demonstration of Case of Gunshot Wound of Both Eyes, with Total Destruction of Left Eye and Dislocation of Lens in Right Eye, showing Ciliary Bodies. Kaspar Pischel.
2. A Review of the Intracranial Complications following Abscess of the Middle Ear. Adolph Baer. Discussed by H. Horn, J. J. Hogan and C. F. Welty.
3. Report of Three Mastoids Complicated by Sinus Thrombosis and Labyrinthitis. Cullen F. Welty. Discussed by H. Horn, A. Baer, R. W. Payne and O. Tobriner.

Urological Section. Tuesday, September 30, 1913.

1. The Use and Abuse of Posterior Endoscopy. J. V. Leonard. Discussed by R. L. Rigdon, M. Krotoszyner and V. Veeki.
2. Removal of Vesical Calculi. Henry Meyer.
3. Demonstration of the Young Lithotrite. A. B. Grosse. Discussed by M. Krotoszyner, A. B. Grosse, W. P. Willard and R. L. Rigdon.
4. The Differential Diagnosis of Renal Tuberculosis and Nephrolithiasis. M. Krotoszyner. Discussed by H. Meyer, R. L. Rigdon and A. B. Grosse.

BOOK REVIEWS

Preventive Medicine and Hygiene. By Milton J. Rosenau. Published by D. Appleton & Co., New York, 1913.

Each chapter contained in this volume is so clear, complete and practical, that it would be difficult to justly compare one with the other—they are all excellent. This book of Professor Rosenau will go down as one of the classics of modern American medical literature. D. H. C.

Gynecology—Vol. IV. of the Practical Medicine Series. By Emilius C. Dudley and Herbert M.

Stowe, Chicago (The Year Book Publishers), 1913. Price, \$1.35.

This little invaluable volume of abstracts of the most important literature of the year relative to Gynecology is of necessity eminently practical, as everything that passes in critical review before such an experienced and acute observer as Emilius C. Dudley is. The articles chosen show a breadth of view that comes to a well-balanced mind through an abundant experience. Many of the articles are abstracted in detail with reproductions of the original illustrations, but only too rarely there is appended some concise, valuable opinion of the editor. More such seasoned and timely personal hints would indeed give additional value to the reader.

Every person attempting to do any work along the lines of gynecology, and who has not been privileged to read the most important of the original articles covered by this little volume, owes it as a duty to his patients as well as to himself to make a careful review of the same. C. J. T.

Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. August, 1913. Published bi-monthly by W. B. Saunders Co.

Contents.

Some Observations on Vaccine and Serum Therapy from Dr. Murphy's Clinic. By Philip H. Kreuscher, M. D.

The Blood-Supply In and Around the Joints.

Urethrectal Fistula.

Laminectomy for Bullet in Lumbar Spine—Removal of Bullet.

Fixation of Knee with Backward Luxation of Tibia.

Fracture of the Femur Above Condyles, with Non-union and Overriding of the Patella by the Lower End of the Upper Fragment.

Cylindric-cell Carcinoma of the Breast.

Tumor of the Radius.

Ankylosis of Knee-joint, with Hyperextension of Leg and Excessive Production of Bone Subperiosteally—Acute Infections in Joints; Formalin-Glycerin Treatment.

Postsacral Dermoid.

Pseudarthrosis of Shaft of Humerus—Ankylosis of Elbow; Wrist-drop.

Bony Ankylosis of Jaw, with Interposition of Flaps from Temporal Fascia.

Ununited Fracture of the Tibia: Removal of Silver Wire; Bone Transplantation. Non-union of Fractures—Causes.

Old Ununited Fracture of the Tibia—Transplantation of Bone.

Laminectomy for Aneurysmal Sarcoma.

Exploratory Laparotomy in a Case of Severe Ascites in a Girl Fifteen Years of age.

Vesical Calculus with a History Simulating Prostatic Disease.

Laminectomy for Myeloma of Cord.

Appendicitis.

Laminectomy for Recurrent Endothelioma of Spinal Cord Third Operation.

Glioma of Right Cerebellar Lobe—Patient Kept Breathing with Pulmotor for Thirty-four Hours.

Vaccine and Serum Therapy. By Edwin Henry Schorer, B. S., M. D., Dr. P. H. Second edition. C. V. Mosby Co., St. Louis, 1913. \$3.00.

This admirably written book gives a complete and comprehensive insight in the subject of vaccines and vaccine therapy giving the accepted opinion of their values, at the present date. The different theories on immunity and opsonins are given in detail as well as a complete chapter on the specific diagnosis and conclusions on their value; to this is added the chapter on specific therapy giving the principles upon which this treatment is based, their

preparations and use—this covers as well the different bacterial products, ante sera, etc., their preparation, standardization and dosage as well as the subject of leukocytic extracts and normal serum in treatment of infections. It also contains a short but complete review upon the diagnosis, treatment and prophylaxis in syphilis and malaria. This, the second edition, is a marked improvement in completeness over the first.

H. R. O.

Medical and Surgical Reports of the Episcopal Hospital, Philadelphia. Vol. 1.

This volume contains 87 pages of hospital statistics, and 32 contributions by members of the hospital staff.—Charles H. Frazier, A. P. C. Ashhurst and others. Ashhurst's papers on various fractures and dislocations are especially noteworthy, the results in his 52 fractures of both bones of the forearm show what may be accomplished by non-operative measures in the hands of a competent man. Fortunately most of these papers have been printed elsewhere; many of them are too valuable to be buried in so inaccessible a hiding place as a volume of hospital reports. The book contains many excellent reproductions of X-ray plates and pictures of the hospital. It is unusually well printed and bound.

L. E.

Diseases of Women. By George E. Herman. Published by Funk & Wagnalls, New York. 1913.

As the title says and Herman states in the preface of this the fourth edition, Drummond Maxwell (London Hospital) has assisted in enlarging this book especially in operative technic.

Former editions are not known to the reviewer, therefore the scope and extent of the changes in the present edition cannot be recognized. This book is neither a text-book for students nor a handbook for practitioners, but it is a book that can and should be read, at least a number of its chapters, with greatest advantage by anybody who undertakes the treatment of diseases of women—diseases of women in the broadest sense.

Herman's book is not to be recommended to the student as a text-book, because it lacks the systematic division and treatment of the material; for an introduction into the study of gynecology it is necessary to adhere to the anatomical basis of division; Herman divides his material rather on a functional basis, on symptoms.

As a handbook for the practitioner it is not on a par with the excellent books by American and Continental authors, lacking in description of detail and in the truly lucid style of illustrations—both essential for the exposition of intricate gynecologic operations. True, the author describes in a concise form treatment, operative procedures, etc., as he found them best suited to him.

The strength of the book lies elsewhere. In the first place, in a few chapters are discussed the relation and significance of nerves and nervous diseases in women to complaints and disorders of their genital organs. This is done from the standpoint that "certain groups of symptoms . . . have often been wrongly attributed to disease of the organs special to the female. While physiological conditions were taken for disease, something supposed to be morbid could be found in most women."

The chapters on Neurasthenia, Hysteria, Headaches, Pain in the Back, Chronic Abdominal Pain, should be carefully and repeatedly read to the greatest advantage of suffering womanhood by those (alas! so many), who trace every complaint of a woman to some supposed affection or injury of her genital sphere. The matter is treated by Herman in a refreshing manner, so entirely different from the superficial argumentation as usually found in gynecological treatises.

The next unusual feature of this excellent book

are the remarks about such things as Anomalies of sexual feeling; Masturbation in the female; Prevention of pregnancy; Sterilization; Sterility in women. The beginner in practice and the experienced physician will alike read with greatest benefit and satisfaction the golden words said in these chapters.

It is but natural from the very personal standpoint of the author, that views and opinions are expressed occasionally that will denote neglect of certain measures and operative interferences which are considered of decided advantage by many others. To mention just one such instance: the technic of extra-inguinal shortening of the round ligaments (Alguic-Adams-Alexander operation) is not described with one single word. Another glaring defect is the omission of even mentioning Nitze's cystoscope; that in view of the present state of cystoscopy, exploration of the bladder with the finger after dilatation of the urethra should even be mentioned, appears rather grotesque. More instances of this kind could be cited, but as stated before, they are due to the presentation of extremely personal views, based on a large and clinical experience. It is just this strong personal individuality, encountered everywhere in the book, that renders its lecture so interesting and enticing.

H. J. K.

The Narcotic Drug Diseases and Allied Ailments, Pathology, Pathogenesis and Treatment. By George E. Pettey, M. D., Philadelphia. F. A. Davis Company, Publishers. 1913.

In view of the fact that the work of treating alcoholism and the various drug addictions has been left largely to the unscrupulous ones practicing medicine where but little good was obtained from their various empirical methods, it is refreshing indeed to read a book written on this subject by a physician not only ethical but one who has had a large personal experience in this work and who has devoted a great deal of study to these cases and has done a world of original research along these lines. Such a book is just off the press of F. A. Davis Co., Philadelphia. The author, Dr. George E. Pettey is to be commended most highly for giving the medical profession the results of his life work in so clear and convincing a manner. It will result in the medical profession becoming more interested in this subject and will have the tendency of placing this work on lines of recognition where it deservedly belongs. The interest and attention of physicians and of the laity are being drawn more and more to this disease until now there are many state and private institutions for caring and treating such cases. Dr. Pettey started original research work on the treating of the morphine habit along about 1900 and published his first article in "The Therapeutic Gazette" in 1901. At the same time Dr. Pettey was doing his work, Dr. M. K. Lott of Cameron, Texas, was also doing original work and read a paper before the Calvert Brazos, Valley Medical Society in Texas, describing his methods and work. As Lott was one of the pioneers in the work and Pettey does not care to give him credit for that pioneer work, I think it only fit and proper that mention should be made here, which in no sense will detract from the excellent work of Pettey. From the writings of Dr. Pettey he has done more to popularize the method advocated by him than perhaps any other, to which I desire to add my endorsement by saying that there is no other successful method in vogue that will do for these patients what can be accomplished by the so-called hyoscine method.

To my mind a portion deserving more than passing notice is Dr. Pettey's original method of treating cases of delirium tremens. It is a well known fact that the prognosis of a serious case of delirium tremens is extremely bad and thousands of men and women die annually from this disease

where the old fashioned method of treatment is followed.

Dr. Pettey regards alcoholism as an acute toxemia and proceeds along lines to neutralize this toxic condition of the blood. He uses normal salt solution per rectum up to the point of tolerance. Also gives a pint of normal salt solution under the skin sufficiently often to keep the blood vessels filled to their limit. This has the effect of diluting the toxins and furnishing the heart with sufficient fluid to lessen its overworked condition very materially lessening the number of pulse beats per minute. It further supplies the brain with a less toxic blood which in itself helps to lessen the irritation causing the delirium. Also assists in the secretion of urine. Epsom salts are given by mouth in two ounce doses frequently repeated; this causes large watery stools, causing a practical washing of the blood.

Calomel is given in five grain doses every half hour for four doses. Spartine sulphate is given in two grain doses hypodermically repeated in four to six hours. This specific medication is largely original with Pettey and has the benefit of strengthening the heart muscles and assisting the kidneys. As we all know how hard it is to produce sleep in these cases it is here where the originality of Pettey is manifested. He has abandoned the old trails and blazed new ones with the result that he uses the alkaloid gelseminine in 1/25th grain doses hypodermically every two hours until the patient either goes to sleep or ptosis becomes too pronounced which is an indication to stop its use. Ordinarily patients are put into a profound sleep within twelve hours after the commencement of the use of gelseminine and awaken with a much clearer mind and far less delirium. In my experience with this treatment, patients become rational within 48 hours, and these cases are brought to a short termination.

This book can be heartily indorsed and recommended to any one desiring information on the method and treatment of alcohol and drug addictions.

R. E. B.

Anatomy, Descriptive and Applied. By Henry Gray, F. R. S., Fellow of the Royal College of Surgeons; lecturer on Anatomy at St. George's Hospital Medical School, London. New (American) edition, thoroughly revised and re-edited, with the ordinary terminology followed by the Basle Anatomical Nomenclature, by Edward Anthony Spitzka, M. D., Director of the Daniel Baugh Institute of Anatomy and Professor of General Anatomy in the Jefferson Medical College of Philadelphia. Imperial octavo, 1502 pages, with 1225 large and elaborate engravings. Cloth, \$6.00, net; leather, \$7.00, net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

The steadfast admirers of Gray's Anatomy will receive a genuine thrill of pleasure when they examine the eighteenth edition, which has just been issued by the publishers. The author and publishers state that the work has been thoroughly revised and re-edited. Descriptions of undue length have been curtailed, and many difficult passages in the text have been clarified. The whole book is thoroughly organized in its headings and the sequence of subjects. The new nomenclature and that still in common use have been introduced in a manner rendering the work universal in the prime essential of terminology.

The two preceding editions were disappointing, on account of the hurriedness and carelessness with which the text was put together and the proof-reading done. Facts were given at times without proper correlation or sequence. In certain sections, an absence of uniformity in treatment was manifest. This state of affairs caused numer-

ous students and teachers to turn wholly to Cunningham, Piersol, Morris and others.

The rehabilitation of this favorite work is a definite step towards having a real American Anatomy, and we may congratulate ourselves upon its appearance.

The illustrations have been improved—some omitted and many others added, there being seventy-six more than in the preceding edition. Two colored figures have been borrowed from Szymonowicz and added to the chapter on development of bone. In the chapter on osteology, most of the illustrations of the bones have the points of ligamentous attachment outlined in blue; the figures of the skull as a whole and its sagittal section have the several bones in different colors. The figures showing the manner of development of the bones give the epiphyseal cartilages and epiphyseal lines in blue also. Upon the outlines of the appendicular skeleton, the areas of muscular origin and insertion are given in red and blue respectively.

McCallum's account of the arrangement of the ventricular musculature of the heart has been followed. Mall's account of the same has not been mentioned, although published in 1911 (*Amer-Jour. Anat.*, Vol. II, No. 3, p. 211). A fuller account of the auriculoventricular bundle of His has been given than in the preceding edition and an illustration giving a schematic representation of it has been added. The "constant bursa" or lubricating mechanism described by Curran (1909) has been mentioned.

The chapter on arteries would have been greatly improved had the illustrations showing the relation of the large vessels to the surrounding structures been made from carefully selected frozen sections, in place of the round circles with the names printed on four sides. The latter have served their purpose and should give way to more modern and improved methods. Figures 431 and 432 (the latter being numbered 435 through typographical error), is a beginning which was begun in an earlier edition and should have been continued throughout.

The question of vascular variation could have received more attention and to the advantage of the surgeon.

One of the great needs of not only Gray's but most Anatomies is a better and more complete series of illustrations of sections of the brain-stem and cord. The transverse sections should be selected from different and most important levels, arranged serially and not widely separated in the text. It is very gratifying to find that figures 642, 643, 645 (wrongly numbered 646), 646 and 647 have been added, and constitute a beginning in this direction. Schematic and diagrammatic figures are very useful for elucidating obscure points and should be retained. Great help would have been rendered if illustrations of Miss Sabin's models of the reconstruction of the brain-stem of a child had been introduced. They are valuable for giving the three dimensions.

The reviewer believes that a limited number of carefully selected bibliographic references should be added at the end of each chapter, rather than as foot notes. Such lists encourage students to refer to the original papers cited in the text.

The chapter on the Surgical Anatomy of Inguinal and Femoral Herniae, and Perinaeum have been omitted from the end of the book. The facts will have to be looked up in the descriptive text and under Applied Anatomy. This chapter was very useful and convenient for the student when working upon these important and difficult regions.

The characteristic clearness of the text and general character of the previous editions are retained.

The subjects of Embryology, Surface Form and Applied Anatomy have not been neglected.

A few typographical errors have been noticed. The above criticisms will indicate that the book is yet far from being ideal, but no more so than other Anatomies. Each work usually excels in the treatment of some particular subject. The improvements are marked and the author and publisher deserve great praise for the excellent character of this edition. It is to be hoped that each succeeding edition will approach nearer to the goal and without any more retrogressions.

F. E. BLAISDELL.

ORANGE COUNTY'S NEW HOSPITAL.

In September the contracts were let for a new county hospital for Orange County, to be built on the county farm at West Orange. It is estimated that the complete building will cost in the neighborhood of \$50,000; it is to be of reinforced concrete, two stories in height, and the design is very pleasing.

BUBONIC PLAGUE; ANOTHER HUMAN CASE.

Another case of bubonic plague in a human subject occurred in Contra Costa County in September; the patient, a man, died in the county hospital on September 11th. The last previously reported case of human plague occurred in June of this year and was that of a Japanese woman in San Benito County. It is announced that \$40,000 has been appropriated by the Federal Government to continue actively the anti-plague work in this state. It is quite right that this work should be done by the Federal authorities and paid for by the Government, for the plague-focus of California is a national and not a local problem.

CONGRESS OF SURGEONS.

The fourth of these huge "congresses" will be held in Chicago during the week beginning November 10th, and a most elaborate and extensive program has been prepared. The events of the evening sessions are here published and from them it can be seen that many surgical stars are to be heard from. The Journal has already called attention to the fact that these "congresses" are not unmixed blessings. It is all right for the trained surgeon to hear some great man describe some complex operation in a few moments of time, or to see him perform it, but there will be hundreds of untrained "surgeons" (and possibly some "fellows of the American College of Surgeons") who will be misled by the apparent ease of the great-man operator and will attempt to do the same thing—with disastrous result to the patient.

Program of Evening Sessions.

Presidential Meeting, Monday, November 10th, in Orchestra Hall.

Edward Martin, Philadelphia: Address of retiring president.

Inauguration of President Brewer.

Brief addresses by presidents of the National Medical Societies.

George Emerson Brewer, New York City: A New Method of Pyloric Closure in Gastro-enterostomy.

Harvey Cushing, Boston: A Report of a Series of 150 Gasserian Ganglion Operations. Discussion by John B. Murphy, Chicago.

Tuesday, November 11th, in Orchestra Hall.

Sir W. Arbuthnot Lane, London: Title of paper to be announced.

Herbert J. Paterson, F. R. C. S., London: The Operation of Gastro-jejunostomy and the Principles Which Should Determine Its Use. Discussion by Carl Beck, Chicago.

John B. Deaver, Philadelphia: Gastric Hemorrhage. Discussion by A. J. Ochsner, Chicago.

Wednesday, November 12th, in the Gold Room, Congress Hotel.

Professor Doctor Krönig, Freiburg, Germany: The Radio-Therapeutic Treatment of Benign and Malignant Tumors. Discussion by Howard Kelly, Baltimore, and C. J. Gauss, Freiburg, Germany.

Roswell Park, Buffalo: On the Relation of the Ductless Glands to the Work of the Surgeon. Discussion by Dean D. Lewis, Chicago.

John F. Binnie, Kansas City: Some Uses of Fat in Surgery. Discussion by Jasper Halpenny, Winnipeg, Manitoba.

Cancer Meeting, Thursday, November 13th, in Orchestra Hall.

Thomas S. Cullen, Baltimore: (a) Report of the Cancer Campaign Committee of the Clinical Congress of Surgeons of North America. (b) The Diagnosis of Cancer of the Uterus.

Mr. Samuel Hopkins Adams, New York City: Publicity Through the Lay Press.

Edward Reynolds, Boston: Publicity and Education Through the American Society for the Control of Cancer.

Frederick R. Green, Chicago: Publicity and Education Through the Council on Health and Public Instruction of the American Medical Association.

Mr. Frederick L. Hoffman, Newark: The Educational Value of Cancer Statistics to Insurance Companies, the Public, and the Medical Profession.

James Ewing, New York City: The Relation of the Pathological to the Surgical Diagnosis in Cases of Cancer.

William J. Mayo, Rochester, Minnesota: Cancer of the Stomach and Colon.

C. J. Gauss, Freiburg, Germany: The Radio-Therapeutic Treatment of Carcinoma.

Joseph C. Bloodgood, Baltimore: A Very Recent Investigation of the Outcome of the Cases of Cancer Recorded in the Johns Hopkins Hospital and the Surgical Pathological Laboratory. (Lantern Demonstration.)

Friday, November 14th, in the Gold Room, Congress Hotel.

Hugh Cabot, Boston: The Diagnosis of Lesions of the Upper Urinary Tract. Discussion by Arthur Dean Bevan, Chicago.

J. M. T. Finney, Baltimore: Fourteen Years' Experience with the Operation of Pyloroplasty. Discussion by E. Wyllys Andrews, Chicago.

Charles H. Mayo, Rochester, Minnesota: A Summing Up of the Goiter Question. Discussion by George W. Crile, Cleveland.

FLEXNER'S MENINGITIS SERUM.

Flexner's serum, for use in influenzal meningitis, can be obtained free of charge on application to Dr. W. T. Cummins, pathologist to the Southern Pacific Hospital, or to Philip King Brown, Union Square Building, 950 Post street. Evidence of microscopic proof of the diagnosis should be submitted with the request, except in emergencies. The statement made before in the State Journal seems to have been overlooked in several cases by people who have communicated with the Rockefeller Institute.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1913, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies":

Whooping Cough Vaccine (Bordet-Gengou Bacillus).—This vaccine is prepared from the Bordet-Gengou Bacillus derived from a case of whooping cough. Sophian-Hall-Alexander Laboratories, Kansas City, Mo. (Jour. A. M. A., Sept. 6, 1913; p. 771).

Electr-Hg.—A colloidal suspension of mercury, equivalent to 0.1 per cent. metallic mercury rendered stable by sodium arabate. Electr-Hg is claimed to have an action similar to that of soluble salts of mercury. Injected intra-muscularly, it is said not to produce pain or indurations. It is used intramuscularly, intravenously and also intraspinally. Electr-Hg is marketed in the form of Ampules of Electr-Hg, 5 Cc., in a non-isotonized condition. The package contains a physiologic salt solution with directions for the extemporaneous isotonicization of the preparation before the injection. Comar and Cie, Paris, France (Jour. A. M. A., Sept. 13, 1913; p. 868).

Melubrin.—Melubrin is sodium 1-phenyl-2, 3-dimethyl-5-pyrazolon-4-amido-methan-sulphonate. It is closely related to antipyrin. Melubrin is white, almost tasteless and readily soluble in water. It is said to have almost no effect on the circulation or respiration in moderate doses, but to be a powerful antipyretic and analgesic. It is claimed to be useful in sciatica and other neuralgias and as an antipyretic in febrile affections. It is said to act similar to salicylates in acute rheumatism. Farbwerke-Hoechst Co., New York (Jour. A. M. A., Sept. 13, 1913; p. 869).

Acne Bacillus Vaccine.—Each Cc. contains 50 million killed acne bacilli suspended in physiologic salt solution with 4-10 per cent. trikresol. Cutter Laboratory, Berkeley, Cal.

Coli Vaccine.—A suspension of the Bacillus coli communis in physiologic salt solution with 4-10 per cent. trikresol. Containing 50 million killed Bacilli coli per Cc. Cutter Laboratory, Berkeley, Cal.

Pneumococcic Vaccine.—A suspension of mixed strains of the Diplococcus pneumoniae in physiologic salt solution with 4-10 per cent. trikresol. Containing 50 million killed pneumococci in each Cc. Cutter Laboratory, Berkeley, Cal.

Staph-Acne Vaccine.—A mixture of killed staphylococci and of killed acne bacilli in physiologic salt solution with 4-10 per cent. trikresol; each Cc. containing 500 million staphylococci and 50 million acne bacilli. Cutter Laboratory, Berkeley, Cal.

Staphylococcic Vaccine.—A suspension of the Staphylococcus aureus, albus and citreus in physiologic salt solution with 4-10 per cent. trikresol. A suspension of various strains of staphylococci containing about 500 million to each Cc. Cutter Laboratory, Berkeley, Cal.

Pyocyanus Vaccine.—A suspension of mixed strains of killed bacillus pyocyanus, in physiologic salt solution with 4-10 per cent. trikresol, 1 Cc. containing about 50 million killed bacilli. Cutter Laboratory, Berkeley, Cal.

Streptococcic Vaccine.—A suspension containing in each Cc. 50 million of killed streptococci in physiologic salt solution with 4-10 per cent. trikresol. Cutter Laboratory, Berkeley, Cal.

Typhoid Vaccine.—A suspension of killed bacilli in physiologic salt solution with 4-10 per cent. trikresol; containing 50 million killed typhoid bacilli of various strains in each Cc. Cutter Laboratory, Berkeley, Cal.

Typhoid Prophylactic.—A suspension made from

a single strain, viz., that employed by the United States Army. Each Cc. contains 1 billion killed typhoid bacilli. Cutter Laboratory, Berkeley, Cal. (Jour. A. M. A., Sept. 13, 1913; p. 869).

Antigonococcus Serum.—Marketed in 10 Cc. cylinders. Lederle Antitoxin Laboratories, New York City.

Antimeningococcus Serum (Antimeningitis Serum).—Marketed in 15 Cc. cylinders. Lederle Antitoxin Laboratories, New York City.

Antistreptococcus Serum.—Marketed in 50 Cc. cylinders. Lederle Antitoxin Laboratories, New York City.

Antistreptococcus Serum, Polyvalent.—Marketed in 10 Cc. syringes. Lederle Antitoxin Laboratories, New York City.

Antipneumococcus Serum.—Marketed in 50 Cc. cylinders and in 10 Cc. syringes. Lederle Antitoxin Laboratories, New York City.

Normal Horse Serum.—Marketed in 10 Cc. syringes and 100 Cc. vials. Lederle Laboratories, New York City.

Scarlet Fever Treatment.—Marketed in four strengths in syringe packages, two vial packages and 20 Cc. vials. Lederle Antitoxin Laboratories, New York City.

Scarlet Fever Prophylactic.—Marketed in packages of three syringes and in packages of three vials. Lederle Antitoxin Laboratories, New York City (Jour. A. M. A., Sept. 13, 1913; p. 869).

Anti-Typhoid Vaccine (Immunizing).—This vaccine is prepared according to Russel from the strain used in the United States Army. It is marketed in three syringes and in ampules. National Vaccine and Antitoxin Institute, Washington, D. C. (Jour. A. M. A., Sept. 13, 1913; p. 869).

CORRECTION.

In the October article by Dr. Kaspar Pischel, "Sclero-Corneal Trephining for Glaucoma," the following paragraph was omitted after "Toilet of the Wound," page 398.

"CLOSURE OF WOUND.—We very rarely employ a suture to keep the flap in place, since experience has shown that it is unnecessary in the great majority of cases. If the flap tends to curl up at the time, or if it is found out of place at the first dressing, two sutures are inserted."

In the only case in which I did not employ sutures the flap curled up and I had to stitch it the next day. I therefore make it a rule to use two or three stitches. I use for sutures rat-tail tendons; they are very fine and are absorbed in about one week.

NEW MEMBERS.

Haworth, M. W., Sacramento.
Tebbe, Fred'k H., Weed, Cal.
Merrithew, E. W., Martinez, Cal.
Carpenter, H. L., Richmond, Cal.
Stanley, L. L., San Quentin, Cal.
Magnusson, H. U., Templeton, Cal.
Genung, Mabel A., Eldridge, Cal.
Kellogg, Preston Stanley, Graton, Cal.
Billings, W. Chester, Angel Island, Cal.
Richards, Dexter N., San Francisco.
Cornell, Earl Hamilton, San Francisco.
Dickinson, C. C., San Francisco.
Ellsworth, A. D., Wheatland, Cal.

DEATHS.

Hesser, Geo. T., Folsom, Cal.
Hyde, Laurence W., Visalia, Cal.
Fritz, J. A., died in San Francisco (from address unknown).
Anderson, Chas., Santa Barbara, Cal.
Perrin, T. A., San Jose, Cal.

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The illustrations on the following pages will give some idea of the beauties of the place.

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PANORAMIC VIEW OF THE CALIFORNIA



Scene near the Orchard

SCIENTIFIC TREATMENT OF TUBERCULOSIS



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TREATMENT OF TUBERCULOSIS



Background of California Sanatorium



ONE OF THE COTTAGES (IN WINTER).

California State Journal of Medicine.

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IMPORTANT NOTICE!

All Scientific Papers submitted for Publication must be
typewritten.

Notify the office promptly of any change of address, in
order that mailing list and addresses in the Register may
be corrected.

VOL. XI DECEMBER, 1913. No. 12

EDITORIAL NOTES

THE SECOND DECADE.

This issue of your JOURNAL completes the first volume of the second row of ten and is sturdier by far than its elder brother of ten years ago. Before discussing anything else, the editor desires to express his sincere thanks to all those who have helped to make up this last volume and for the almost perfect courtesy and consideration which have been extended to him and to the Publication Committee, alike by those whose contributions have and have not been accepted. Two things are to be distinctly noted as indicating advancement: first, the quality of the papers written by our physicians in California has improved very markedly in the last ten years, not alone in the matter presented but also in the care displayed in writing and the preparation of manuscripts; second, the circulation of the JOURNAL is slowly but surely increasing in spreading through the country, and this in spite of the fact that no agents are employed and no "sample copies" have been sent out. It is also interesting to note that many articles which have appeared in your JOURNAL have been quoted or abstracted in a number of medical publications in this country and abroad. All of this goes to show that the prophesy made ten years ago was not far wrong: that a journal owned by ourselves and stimulating greater care and greater effort on the part of our members, would tend to

make our members produce better and more carefully prepared articles. Many a poor paper has been printed next to a very good one, and the author has seen where he was weak and has corrected his weakness; many a paper has been returned with suggestions for its improvement, and has subsequently appeared as a creditable article. Of course, the JOURNAL and its Publication Committee and its editor have been criticised; it would be impossible to be otherwise; it would be impossible to print a single issue that would entirely satisfy every one of the three thousand readers. Questions arise that are matters of the gravest policy, and in determining a line of action, personal considerations must be ignored, and so some persons' feelings are apt to be hurt. But while that is to be regretted, it cannot be helped unless the character of the JOURNAL is to be entirely changed and it is to become a spineless thing, repeating only pleasant words and expressing no definite attitude on any vexed question, and your editor believes that the vast majority of our members do not desire such a change. The printed record of the past years is a clean one, and in every case of a decisive and decided stand on a question of importance that has come up, time has shown that your JOURNAL was on the right side, though at the moment it may not have seemed so. From its very first number, your JOURNAL, under the guidance of its various Publication Committees and its editor, has endeavored to do these things: bring into closer harmony and better organization our county units and their members; aid in every way possible the improvement of our members and the medical profession and the betterment of public health conditions.

YE HUMOURS OF YE BLOOD.

We travel quite a lot in circles, we human animals; not so much is it "the swing of the pendulum," of which we hear a great deal, as a real circular movement. Years ago, every abnormal condition was due to some humor of the blood; the blood was too thick, or too thin, or was bad; "bad" was a very broad and catholic word. Then came a time when all that "humor" business was laughed to scorn and the blood was never at fault; always there was some specific or other thing to be reckoned with and fought to a finish; the blood was a fluid stream that remained always the same. But see how we have changed in these last few years! The blood has become a veritable scientific gold mine for research work; it is found to contain innumerable qualities of a peculiar and complex nature, and to do or not to do, the most remarkable things. Truly, we have come back to the humors of the blood, and not alone do we deal with the humors in the blood of an individual, but we put certain humors into his blood when they are not normally there. All our biologic therapeutic remedies are merely a means of putting into or stimulating in the blood some humor—a something that we know not, but still a something that will be of benefit to the container patient.

OUR CRITICS.

There appears to be a disposition on the part of the "many headed" to bewail the quality, or rather the lack thereof, of our editorial comment. Our critics assert, and doubtless they speak from experience, that no man reads a scientific article, unless haply he hath himself written it. What your "constant reader" turns to are the short editorials which occupy the first three or four pages of each issue of this JOURNAL. They urge the importance of having these columns light, breezy, entertaining, contentious. Now, the field within which we must confine our editorial activities is necessarily a narrow one, but as though that were not difficulty enough, please note the further restrictions we must observe if, lumping all and sundry protests, we would offend nobody. Our critics would have us eschew politics or reference to the actions of politicians, even when these bear directly upon matters medical. They weary alike of "fulminations against vendors of proprietary nostrums" and "impersonal diatribes directed at illegal practitioners." Not less deadly do they find the "ponderous digests" of foreign medical publications which "masquerade as editorials" in the *Journal of the A. M. A.* Finally, from the "conservative and ultra-conventional pronunciamentos" of our distinguished contemporaries the *Lancet* and the *Journal of the B. M. A.*, they turn them away. They profess Wagner, but their ear is attuned to ragtime. They do not wish to be instructed. They dread to be exhorted. They would be amused. But that is really a large undertaking. Said Garrick, "I am always ready for tragedy at any hour of the day or night. But comedy! Ah, that is a serious matter!" Reflection would seem to show that our critics have collectively debarred us from discussing about everything except personalities. To be sure, personalities are always entertaining—at least, to those who are, to use a slang expression, "in the know." But not one man in a generation can deal in them without giving offense. One may recall with pleasure the placid smile with which Addison invited us to view the foibles of our neighbors, the while we knew that in the next issue of the *Spectator* we might find him wearing the same gentle smile and laying bare our own. However, the eighteenth century produced but one Addison,* while the nineteenth and thus far the twentieth have produced none at all. Thinking these thoughts we have felt constrained to remind our readers that this is not *our* journal but *your* JOURNAL. And that our columns are open to anyone who has a live thought on a live subject and is able to put the same into live English. To those who simply find fault without attempting to help us in our effort to better the JOURNAL we would commend for their serious consideration the following definition: Criticism is the art of telling another how he ought to have done what you could not do yourself.

*The individual here referred to is not the immortal discoverer of Addison's disease.—S. N. I.

GOOD TREATMENT FOR INSURANCE COMPANY.

Most generally, it is because we physicians tolerate the imposition that we are imposed upon. Five dollars is little enough to receive for an examination for life insurance, and if no physician would make such an examination for a less sum, why, \$5.00 would be the minimum fee. That seems a simple argument and an incontrovertible. And yet, as a matter of fact, we know many physicians are doing the work for \$3.00 or less. Some, if not all, of the accident and casualty companies issue schedules of the fees they "allow" the physician for examining their insured, or for treating them, or operating upon them, and more than once has the JOURNAL commented upon the absurdly small amounts thus "allowed." Here and there, however, we find a doctor with spine enough to stand up for his just fees and demand them—or refuse to accept the amount "allowed." An instance of that sort has recently come to our attention, and is worth putting in the printed record. The agent of the New Amsterdam Casualty Co. asked a doctor in one of the interior towns to examine a man insured in his company, which was done and the final blank filled out and sent in with a bill for the fee of \$2.00. In reply a letter was received, a portion of which is as follows: "From assured's proof of loss we presume you were Mr. —'s family physician. We therefore regret that this bill is not for our attention." A little later this same company sent the same physician another man insured by them, but this time the doctor wrote to the company, after declining to examine the patient on the ground that he was not the patient's physician, a letter in part as follows: "Having in fresh memory your refusal to pay my fee in the case of Mr. —, I must therefore return to you the enclosed examination blank with your own sublime and sad expression, 'This is not for our attention.'"

AMENDMENT TO THE CONSTITUTION.

At the last annual meeting of the State Society, the following amendment to the constitution was introduced, and under the rules laid over till next year: Amend Section 4 of Article V of the Constitution to read as follows: "The selection of the place of meeting shall be determined by the Council and its announcement followed by the election of officers shall be the first order of business of the House of Delegates at the second evening session of each annual meeting." Under the constitution as it is at present, the place of meeting is determined by the House of Delegates. Presumably, the purpose of the proposed amendment is to save time; under it the various places that might ask for the meeting for the following year could address their requests to the Council, the Council could take time to look into them, see if proper hotel and other accommodations were requisite, and then decide. It might be well for the various county units to consider this proposed amendment and be in a position to advise their delegates how to vote upon it at the meeting at Santa Barbara next April.

AN INFLUX.

Undoubtedly there will be a large increase in the number of physicians in California in the next few years. The taking down of the bars has already begun, and in spite of the best that it can do, the new board under the new law will be forced to license a considerable number of poorly qualified physicians. We will be wise to discount that condition in advance and prepare for it. It seems to be the desire of the people to permit almost anyone who may desire to do so, to practice the healing art. How, then, may we furnish some index to those of more intelligence who really wish to secure the services of a qualified physician and not a poorly educated one or a pretender? It would seem that this can only be done through our county units; membership in a county medical society must become a badge of quality—a "hall mark," as it were. Under the recent change in organization, every member of a county society is a member of the American Medical Association and is entitled to wear the badge of the Association. That in itself is an indication of some standing, and if our county units will pursue a policy of careful discrimination in the election of members, in a very few years that badge of membership will entirely take the place of a license to practice in the eyes of the better and more nearly thinking element of the community. The "drugless healer" of any sort is to receive legal recognition and the people cannot discriminate from mere names; they can be taught, however, that membership in a county medical society means something; and they can be taught that the physician who is entitled to wear the A. M. A. badge, thus showing that he is a member of his county society, is a physician who can be trusted to be something better than a licensed quack.

A SAMPLE LETTER.

Referring again, for a moment, to the circulation of the JOURNAL and the fact that subscriptions come in voluntarily and because of the influence and the character of the publication and not from coaxing agents, etc., it is a pleasure to quote the following paragraph from the letter of a physician in Minnesota:

"I have never been invited to subscribe for your JOURNAL, and while perhaps I have not felt slighted, I have seen a copy or two of it lately and have made up my mind that no doctor's shop is complete without it, so I enclose herewith check for \$1.00, which I believe is the established price, and respectfully request that you cause my name to be placed on the subscription list."

There is a whole lot more satisfaction in getting one letter and subscription like that, that to get fifty impersonal subscriptions from agents or the like. And this is not the only letter of its kind.

HOW FAR SHALL PROTECTION GO?

In a letter received some time ago, from a physician practicing in one of the smaller towns, occur some words of protest against certain portions of our principles of ethics. One may not entirely

agree with the writer—and another may; at the least, there is ample food for thought upon the points raised, and therefore we take pleasure in presenting this physician's views and would be glad to receive the expression of opinion of others of our members.

"We also need and should obtain absolution from some of the ancient, hide-bound, poppy-cock, impossible, unattainable ideals of the code of ethics."

"Chapter I, Section I, says, reward or financial gain should be a subordinate consideration. Financial reward should go hand in hand with the services rendered to humanity. Humanity don't appreciate such a lofty ideal, but it does take advantage of it by failing, neglecting and refusing to pay for services rendered, and even in some instances demands, and endeavors to compel, services for which they never expect to pay one cent."

"Article III, duties of physicians in consultation. Yes, certainly, shield your brother physician when he is right or honestly mistaken and is trying to do his best, but how about the drunken, besotted brother who is so pickled in barley-corn juice, or so comatose from morphia or other drugs, and as often is the case, so densely ignorant and careless that the patient's life is in jeopardy and often lost? Yes, I mean lost, for I have personally witnessed the departure by reason of attendance by such a brother physician (?). The code says protect him, lest the criticism (or whatever it might be) react against the critic. Very well, Mr. Code, right there we part company. I don't protect gross ignorance and criminal neglect and grossly intemperate habits, even if they are under cover of the magic letters M. D. We should proceed to set our house in order, keep it so, and surround it with safeguards that will make it secure against evil criticism and successful attack by the public."

PUBLIC HEALTH NUMBER.

An early issue—probably January—will be devoted to a very good collection of papers on public health subjects which were read at the recent meeting at Venice. Dr. Sawyer and Dr. Force were good enough to collect the papers and prepare a general report of the meeting. There will also be some editorial comment on the subject and the number should be of great interest; many of the questions discussed are most timely and have brought concretely to our attention public health problems of the greatest importance to the people of California.

THE INJECTION OF CONCENTRATED SOLUTIONS OF 606 AND 914.

One of the great drawbacks to the use of the newer arsenical preparations discovered by Erlich has been the difficulty attending the proper preparation of the solution to be injected. A rather complicated technic is employed, special apparatus is used by most men, and great care is essential in the exact neutralization of the otherwise acid salvarsan solution. In a large number of cases, the toxic reaction following the injection of salvarsan or of neosalvarsan has been attributed to the water in which the drug was dissolved. Many clinicians

strongly object to the use of freshly boiled tap water which, according to the directions accompanying each package of neosalvarsan, is permitted "if the water is practically free from bacteria and does not contain too large a quantity of mineral salts." In fact, some have gone so far as to insist upon the water being twice distilled in apparatus made entirely of Jena glass.

During the slow infusion of the dilute neosalvarsan solutions it was found that oxidation of the drug occasionally occurred and caused unpleasant symptoms. It was furthermore noted that this took place more rapidly with salt solutions, but the danger of hemolysis rendered the infusions of large amounts of distilled water too hazardous a procedure to warrant their employment.

The drug having therefore been exonerated of the charge of causing all the disastrous consequences following the use of 605 and of 914, and the water itself having been accused, tried, and so often found guilty, it is quite logical to find clinicians attempting the injection of both the old and new salvarsan in concentrated solution, thus minimizing the dangers from the so-called bacterial and chemical "water errors."

Thus it happened that almost simultaneously did Ravaut of Paris and Duhot of Brussels begin the intravenous injections of concentrated solutions of neosalvarsan, Duhot's reports being published a short time ahead of Ravaut's. Shortly afterward this method was adopted by Stern, Strauss and Zumbusch, the article by Stern—based on over 1000 injections—being the one which drew the writer to try out the method.

The technic employed, practically that of Stern, is as follows: 50 cc. of tap water or ordinary distilled water such as employed for laboratory use, is boiled for 5 minutes in an Erlenmeyer flask, closed with a pledget of cotton; this is allowed to cool or, if in a hurry, cooled under the faucet before use. A 10 cc. Record syringe is either boiled or cleaned with alcohol or ether and air dried, and into it is then poured 5 to 8 cc. of the water, the end of the syringe being closed with the finger. The ampoule having been filed and broken, the salt is dropped into the syringe, the piston inserted, and the syringe shaken until the salt is dissolved, which takes but a few seconds. Care must be taken to avoid glass splinters getting into the syringe. (Duhot has devised an ingenious syringe to offset such a possibility.) The injection is made in the vein at the bend of the elbow, the technic being that of an ordinary intravenous injection, with the difference that it should take place more slowly. Properly executed there should be no pain at all, i. e., if the injection be *intravenous*. It is wise to draw up a few drops of blood into the syringe before withdrawing it, lest some of the solution in the needle leak into the tissue. If, however, this should happen, pain may be severe enough to require compresses or narcotic drugs; ulceration has never occurred.

We have employed this method since September 12th, with the greatest satisfaction to ourselves and to the patients, who naturally prefer this to the tedious infusion method. The number

injected is small, due to lack of suitable material, but we mention it to encourage others to try the method, as most of the confrères to whom we have already suggested it considered it *a priori* a risky thing to do, only two of them so far as we know having adopted it.

Stern advocated and used concentrated salvarsan solutions as well as those of the neosalvarsan. The technic here simply requires preliminary neutralization with 15% NaOH, using if desired a drop of 10% phenolphthalein to indicate the exact point.

Zimmern employed the concentrated salvarsan solutions, but was unable to avoid fever, vomiting and pain in the region of the vein, and returned to the infusion.

We are therefore more than pleased to find that at last Dreyfus* (than whom there is no more conservative user of salvarsan, and who has had the advantages of a large experience in Frankfort, in more or less intimate contact with Erlich), has declared himself in favor of the concentrated solutions (not quite so concentrated as Stern's, however). We would urge everyone to read his article—wherein can be found references to the other articles—and will here only reproduce a few of his conclusions:

The injection of concentrated salvarsan solutions with a syringe (0.1-0.5 grams dissolved in about 30 cc. twice distilled water) offers a series of advantages over the former infusion method with large amounts of fluid (150-250 cc.).

The number of subjective and objective reactions is smaller than with the use of large amounts of fluid.

A properly conducted salvarsan cure consists of 12-15 injections (inside of several weeks). The work imposed on the circulatory system is undoubtedly less with the injection of smaller amounts.

According to Zimmern's results, salvarsan is retained longer in the body when the concentrated solution is used, the larger amounts of fluid apparently stimulating diuresis and arsenic elimination.

With the concentrated salvarsan injection one can dispense with salt solution, using only twice distilled water. This not only simplifies the technic but does away with one possibility of serious contamination.

The glassware is sterilized by 20 minutes' boiling, preferably in distilled water, thus doing away with the time consuming and complicated dry sterilization.

The action on the kidney is the same whether the concentrated or dilute solution be employed. In the presence of manifest nephritis if salvarsan be used at all it should not be in the concentrated form.

In syphilitic disease of the circulatory organs, very small doses of salvarsan, or even better neosalvarsan, are recommended, both, however, in the concentrated solutions.

The only possible drawback to this method, according to Dreyfus, is that the technic *must* be perfectly carried out.

RENÉ BINE.

* Muench. med. Wochenschr., No. 42, 723-733, 1913.

ORIGINAL ARTICLES

THE DEBT OF HUMAN EMBRYOLOGY
TO THE PRACTITIONER.

By ARTHUR WILLIAM MEYER.
Department of Medicine Stanford University.

There is probably no subject in the whole realm of the medical sciences more dependent upon the practitioner for its materials than human embryology. The practising physician alone has the opportunity to gather the windfalls without which future progress in embryology is impossible. Hence it is to practising physicians and surgeons the world over that embryologists have been, and ever will be, indebted for the many valuable specimens which they have so generously contributed and which have made the many recent advances in embryology possible.

Through the devotion of a single anatomist and the generous and unselfish co-operation of many physicians from all parts of this country, one splendid collection of almost 600 specimens has been made. It ought to be cause for special gratification that a number of the specimens in this collection were the gifts of California physicians who heard and answered the appeal made by Professor Mall almost two decades since. There are at least two embryological collections in America of which any physician or anatomist may justly feel proud. No doubt it would be a far greater and juster cause for pride in Americans if there were, as there well might be, one such collection in each state. That is a task for the future which it is well worth beginning now. What can be accomplished by the physicians of a single state is well exemplified by the physicians of Maryland who contributed 300 of the 533 specimens which composed the Johns Hopkins Medical School collection last year. This interest taken by physicians in the promotion of human embryology has been highly gratifying indeed.

The history of this collection and the admirable use to which it has been put should be an encouragement to the physicians of California. The harvest is a truly abundant and never failing one but it is unfortunately allowed to waste ungarnered, or if garnered is often permitted to waste through lapse of time or through the use of unsuitable preservatives. It has been estimated by competent authorities that 20 per cent. of all pregnancies end prematurely. Hence it is evident that if all the material which is practically wholly lost to science now, in a single one of our great cities, in a single year, could be placed in proper hands, it would form an unsurpassed and invaluable collection. Such a collection if placed in competent hands could be made productive and would eventually be bound to benefit every practitioner, even if he were located in the remotest parts of the earth. From such a collection, much information could be gained on many phases of human development; on the formation of the placenta, the age of embryos, the frequency and significance of abortion; the duration of pregnancy, the pathology of pre-natal life and on many other questions. Mall in a recent article in speaking of one of the possibilities of such a collection says,

"A great field opens to us for the study of histogenesis which binds embryology to histology to make the foundation for scientific anatomy."

The use to which embryological material has been put is well illustrated by the many articles on human embryology which have been contributed during recent years. Minot's Laboratory Text-Book of Human Embryology is based on Professor Minot's collection, and a Study of the Causes underlying the origin of Human Monsters, by Professor Mall, as well as a series of chapters in that splendid Manual of Human Embryology by Keibel and Mall and a hundred contributions besides, are based on the Johns Hopkins Medical School collection. Both these collections have made many contributions possible and will be used for many years to come by present and future investigators.

To be sure, the above are not *show* but *working* collections. Gross specimens in bottles may satisfy a passing curiosity or a collector's desire but they manifestly cannot be utilized for science—that is for the benefit of all—as long as kept in bottles whether in or out of a laboratory. The desire to make a show collection has often proven productive of much good but the day has long passed when "anatomists feared to make a thorough examination of ova and preferred rather to preserve them in alcohol." Grouped as gross specimens, in small collections and scattered here and there in offices about the country, such specimens not only deteriorate but must, of course, remain useless and unproductive of good to anyone. In proper hands this untimely harvest can be made productive indefinitely in the future and be preserved permanently from deterioration.

Since Teacher's ovum measured only two millimeters, or about one-twelfth of an inch, it may be concluded that older embryos are no longer of much value. This, to be sure, is a great mistake. Any embryo less than one inch long is a very valuable specimen in the hands of any competent anatomist and material of all ages is useful. Young specimens are, however, comparatively rare. Among the 533 specimens in Mall's collection, for example, there were only 50 normal embryos less than 8 millimeters or one-third of an inch long; but 133 normal specimens between 9 and 25 millimeters, i. e., between one-half and one inch. Mall further states that 198 specimens or approximately 37 per cent. of the total, were pathological and that 68 per cent. of these were from the first six weeks of pregnancy, 34 per cent. from the sixth to the eighth week and 18 per cent. from the last seven months.

Very young ova can, to be sure, be obtained only by some rare opportunity—but even with young ova it is very much as Burroughs said it was with birds, "How many you will see depends on how many you will look for." Herzog's experience, as well as that of others, illustrates how long vigilance is finally rewarded and as has been well said if "gynecologists will only show the proper interest and look with special care when a fresh corpus luteum is seen, the desired specimen will not remain hidden much longer." The desired stages

here referred to are the earliest unknown stages. Since the ova at this time are only a few millimeters in size these early stages can probably never be obtained in good preservation save incidentally in connection with operations.

It is well to recall in this connection that the rare and well-known specimens of Peters and Leopold were obtained at autopsy upon young women who had committed suicide, and would undoubtedly have been lost had not pregnancy been suspected and hence great care been used in examining the uteri. The embryos described by Keibel-Frassi, Herzog, Penkert and others were obtained through operation and necropsy while those of Strahl and Beneke, Fetzner and Jung were found in the material obtained by curettage. Fortunately in these cases the scrapings and the tubes were fixed immediately after operation with the embryo left undisturbed as far as possible. To be sure most of these specimens only approximate more or less closely the ideal object spoken of by Jung when he says that "The ideal of an object for human conditions would be an ovum of the first week of fertilization found in a freshly extirpated uterus which was fixed immediately in Zenker's or Flemming's fluids and then prepared according to the best technical methods. The uterus in question should, to be sure, be free from such pathological changes—myomata, chronic metritis, etc., as have according to experience a pathological influence on the imbedding of the ovum."

But it is not only such perfect specimens or such very young embryos that are desired. No matter how far it has to be shipped any embryo less than two inches long should not be thrown away unless in a bad state of preservation. Moreover, those who are near a laboratory will find that practically all unmacerated foetus, no matter what the age, and material from abortions and curettage can be made good use of and will be gratefully accepted. In case of abortion of very young ova the latter are, of course, contained in clots of blood. Hence it is well to preserve the material *in toto* in 10 per cent. formaline.

The lack of definite data regarding most embryos leaves a gap which it is impossible to fill later. I fully realize the difficulties involved and the necessarily questionable value of many of the data when obtained, but the effort to obtain them is well worth while and will often be rewarded in the most unexpected way. Moreover, even if the individual histories are unreliable or incomplete yet they may complement each other and nevertheless have a value in the aggregate which is quite unsuspected. Among the data of special value are the cause and the date of the abortion, the presence of local or constitutional disease, the nature of the damaging force if the embryo was injured accidentally, the menstrual history including the length of the intermenstrual period, the duration of menstruation and the beginning of the last menstrual period. While the need for and the value of definite data cannot be over emphasized anatomists are aware of the attendant difficulties and will indeed gratefully receive speci-

mens without any data whatever, for it is the specimens that are needed above everything else. Hence all fresh material from early pregnancies is worth preserving.

Although most specimens an inch or less in size reach the physician in a state of poor preservation, further maceration can be easily prevented. For this purpose two re-agents, one of which is always at hand in a physician's office, may be used. These are ethyl or grain alcohol, or *far preferably* commercial formaline. If the ovum is entire and alcohol is used, it is best to put it in 10-15 times its volume of undiluted ethyl alcohol. If, on the contrary, the specimen is a ruptured ovum or an embryo with the membranes ruptured, ethyl alcohol of 75-80 per cent. strength should be used in similar quantity, or better still, in excess. For convenience it may be remembered that 85 cubic centimeters of undiluted ethyl alcohol and 15 cubic centimeters of water will when mixed, give practically 80 per cent. alcohol; that is in the ratio of one ounce of water to four and one-half ounces of alcohol. If alcohol is used and the specimen is not forwarded directly to a laboratory fresh 80 per cent. alcohol should be put on the specimen in a day or two. Thereafter it need not be changed for some time.

Formaline has, among others, the advantage that it *need not be changed* and that it can be used in the same strength for specimens of all kinds and sizes. It should be used in 10 per cent. strength, i. e., one part of commercial formaline should be used to nine parts of water. Commercial formaline contains, of course, only about 38-40 per cent. pure formaldehyde, but it may be treated as containing 100 per cent. for these purposes. The usual mistake is to use too little of the preservatives in proportion to the size of the embryo. In the absence of formaline if delay in forwarding makes changing of the alcohol containing the specimen necessary the fluid should be decanted and the specimen left undisturbed. If the bottle or jar containing the specimen is filled completely no damage can come to a small embryo no matter how far it is sent or how roughly it is handled in shipment. Small specimens can best be handled with a spoon or spatula for any injury due to rough handling is likely to be more serious than suspected.

Tubes and uteri which are thought to contain early pregnancies had best be treated similarly but they should never be opened at random in order to avoid loss or damage to small embryos.

Since the matter of preservation is an all important one the use of 10 per cent. formaline is strongly advised. It is regrettable that, as Mall wrote in 1893, "Nearly all human embryos which come into the possession of embryologists are of little value for careful study, because they have been preserved carelessly. Of fifty embryos less than six weeks old which have come into the writer's hands during the last few years, only six have proved to be of value and these came from three physicians. In nearly all cases the specimen is destroyed by placing the ovum in very dilute alcohol, and in so doing it is handled very roughly."

Poor specimens, however, are better than none at all, therefore in all cases the ova should be preserved even if there be but little hope to obtain a good specimen." Unfortunately the fact that wholly different pictures are obtained from the same tissues if fixed while absolutely fresh than when fixed a long time after death, and that the character of the fixative also is a factor in distortion of the tissues have not yet received sufficient recognition.

In making this appeal for material, I have no purpose save to serve human anatomy and through it the profession. Through the donations of students and the unselfish efforts of a few physicians a beginning has already been made. But it is as yet only a beginning. We are now equipped to properly care for whatever material may be presented. Such a collection is not to be the personal property of anyone, to be sure, and all we desire is to act as stewards. Careful records will be kept containing the name and the address of the donor, such histories as it may be possible to obtain, measurements, drawings and photographs and any further data of value. This collection will, to be sure, always be accessible to any properly qualified student or physician. Specimens which cannot be utilized to best advantage here will with the knowledge and consent of the donor, be given to another laboratory as gifts of the original donor, so that all the material may be used to the best possible advantage. As is probably known to most physicians, Professor Mall has for years made a special study of pathological ova and embryos. Hence no better disposition could be made of certain specimens than to transmit them to him for study. However, since it is often not a simple matter to determine the normal or abnormal features of early ova by a cursory examination it will be appreciated if all specimens are transmitted to the undersigned for examination.

The establishment of such an embryological collection as already begun and as herein contemplated concerns every member of the medical profession on the Pacific Coast. For no matter how extensive they may be why should we be and remain wholly dependent upon collections 3000 miles distant? My primary purpose is to save this invaluable material for a California collection but if anyone prefers to send his specimens to an eastern laboratory I am sure that Professor Mall will be exceedingly grateful for them.

I have indicated what has been accomplished by the combined efforts of physicians and anatomists elsewhere. I have as ample a faith in our profession on this coast and fully expect this faith to be justified by the response to this and other appeals and by continued donations in the future. May I add that it is *your* attitude which will determine the results, for I am helpless beyond the asking.

Any small or unusual specimens will gladly be sent for or may be sent by parcel post or C. O. D. Wells Fargo, to the Anatomical Laboratory, Stanford University, California.

THE IDEAL HOSPITAL.*

By D. GOCHENAUER, M. D., San Diego.

The title of the paper for this evening, "The Ideal Hospital," in its more comprehensive sense, would naturally include hospital construction; this feature alone would furnish thought for data, more than enough for one thesis. To-night, then, we will consider more particularly hospital management.

It has been said that it takes nine men and a sheep to make a woolen blanket. I quote this only to illustrate that experience has taught that under the department system, the strictest economy and highest efficiency in the manufacture of woolen goods, as well as in other lines of business can be reached.

The most successful corporations, public and private institutions, have learned by actual experience that the best results can be obtained under the department plan in the management of their business, and this applies with equal force to hospitals.

It is the exception to find the best fitted, and the best trained business men in the management of hospitals. Proper temperament, keen perception, a thorough knowledge of men, and a graceful and tactful adaptability to their varied requirements, coupled with good business and hospital training, are essential in a manager of a hospital. If it is necessary for a nurse to be trained to guarantee efficiency in her profession, why is it not as essential for a manager of a hospital to be also a hospital trained man?

While superintendents of nurses are originally chosen from the best young women in the average walks of life, ninety per cent. of them have had no practical business training. They are, however, trained in all that pertains to the management, care and teaching of the training school, the care of the sick, and a most painstaking loyalty to the hospital and to the medical profession.

I know of no line of business, in the affairs of which there is quite so much friction, and lack of harmony as is usually found in the affairs of hospitals. This is largely due to a lack of proper understanding between the management and the superintendent of nurses.

I have read a number of articles on this subject, and while they all recognized the existence of conditions referred to, none went deep enough into the subject to point out the causes, or even to suggest a remedy. One of these articles, I remember, placed the entire blame upon the superintendents of the training schools, the substance of which read something like this: "These superintendents think that hospitals are planned, constructed and maintained for their special benefit, that they are the hub around which the whole institution revolves."

While it is true that the arbitrary and dictatorial methods of some of these heads of training schools have brought reproach upon their profession, it is not the rule among the more experienced and intelligent class of superintendents.

* Paper read at the meeting of the Association of State Hospitals, Los Angeles, Cal., September 17, 1913.

In my special study and experience, in all branches of hospital work, which has been more or less varied, and covering a continuous period of over twenty years, I have never found any difficulty or unwillingness on the part of superintendents to work in unison with all departments, for the betterment and highest success of the hospital.

I know of instances where superintendents of nurses of the highest type, capable, conscientious and loyal to their trust, who have been stiffnecked and in a measure apparently defiant to those who were placed over them. Inconsistent, or strange as it may sound to untrained people, these nurses in most cases, were protecting the best interests of the hospital.

It sometimes happens that for various reasons, the general management is placed in the hands of an untrained hospital man, and without practical business training, one who has not the least conception of the primary object of the hospital, or of the requirements for the successful workings of the same, totally ignorant of the proper care of the sick, and the training of nurses, one who does not even understand the courtesies and ethics due the medical profession, and unfamiliar with the innumerable little points essential to the best interests and highest success of a hospital. Ninety per cent. of the friction and lack of harmony found in hospital work, is directly traceable to the ill-advised officiousness of untrained managements. Superintendents of nurses are placed at the head of the most important department of the institution, and upon the success of this department rests, in a great measure, the general success of the entire institution. The apparent arbitrary attitude of superintendents is in many cases nothing more or less than a position of self-defense. These hospital women have inalienable rights which, when trespassed upon too severely, it becomes their duty to protect. Failure in their department of a hospital spells failure to the entire institution. They have a reputation to maintain, and cannot afford to be classed as failures; their self-respect, their pride and professional honor are at stake; these are their sacred and well-earned capital, and they would indeed be recreant to a sacred trust did they not protect them.

The Remedy. Experience on the part of the best business men of the world has proven conclusively that the highest efficiency and best results can be obtained only when the business is properly classified under well arranged departments, and when all departments show proper consideration and respect toward each other, and when all concerned work in unison. While hospital management differs in some respects from other lines of business; in the main the methods best adapted to others will apply equally well to hospitals. We all recognize the absolute necessity for "a head" or governing power of all well regulated business. The directors who represent the stockholders are, in all other lines of business, the supreme business head. They elect a president who represents them in the interim between meetings. They also select a general superintendent or manager, who should

under the direction of the president, have general supervision of the business. The same general business plan should be followed out in hospitals.

I would have semi-monthly meetings of the president and manager with the heads of the principal departments, for reports and comparison of experiences from each department. Such conferences would prevent misunderstandings and consequent friction, and would prove conducive of good fellowship and harmony. I would recommend that the board of directors appoint an executive committee, consisting of three of their own members, whose duty it should be to keep in touch with the officers and heads of the principal departments, and to make such suggestions from time to time as they deem advisable, and to make a report to the board of directors at each annual meeting. The principal object of this committee is one of conciliation, to bridge over chasms that may confront the departments from the usual differences of opinion, and apply a suitable balm to assuage the sore places caused by imaginary wrongs, as a result of misunderstandings.

The Supervisor or manager may be a hospital trained man, or he may be chosen from the business walks of life. In the latter case especially his wisdom and good business judgment will be put to the test in his selection of the heads of departments, and his tact and ability to keep them well within their special fields, to direct a high efficiency, good discipline, cheerful co-operation, and the best of harmony. Selfishness and egotism on the part of a manager will ruin both efficiency and harmony in a hospital.

The Financial and Business Department. This is directly under the supervision of the manager, his duties in this department are similar to those in like departments in other lines of business. The manager also has a general supervision over all departments.

Department of Nursing. To be under the direct supervision of the superintendent of nurses. She occupies the dual position of both matron and teacher. Among her many duties and responsibilities I mention the following: She should direct the care of all patients and rooms. She should have the selection of nurses, and the supervision of the training school. She should be held responsible for the proper care of the nurses in and out of the hospital, on and off duty. She is responsible for all duties assigned the nurses, responsible for the correct and safe administration of medicines, for a proper technic in surgery, for the sanitation of nurses' dormitories, and for the faithful carrying out of physicians' orders. She is also expected to see that patients are courteously received, comfortably and pleasantly situated, and their friends given proper freedom, and a feeling of welcome.

Physicians look to the superintendent of nurses for correct and reliable chart records of their cases, and for frequent confidential consultations regarding their patients. Physicians make her the confidential custodian of many matters regarding

their professional relation to the hospital, their patients and friends.

Patients also make the superintendent of nurses a confidential medium for special messages to friends, for special needs and desires from the hospital, and from their physicians.

To properly fill all the requirements of her position the superintendent of nurses must be an exemplary woman. She must be high-minded, magnanimous, charitable, noble, kind and true, and must be above all little traits of character, with her whole devotion given over to her profession. Indeed a competent, conscientious and true superintendent of nurses is the most important personage in a hospital and I often think that hospital authorities rarely appreciate their importance, responsibility and worth. The ideal superintendent occupies a position in the community that in influence and importance reaches far beyond the confines of the walls of the institution that surround her work. When I speak of the worth, I do not entirely refer to her efficiency in the training of nurses, or her ability to aid the management in the financial success of the hospital. Personality is one of her greatest assets; nurses after three years of close and intimate association with their superintendent, to a large extent take on her characteristics; this is especially true when she is broad-minded, magnanimous, noble, kind and true.

She should live the true definition of nurse. Her daily life and teaching should be such as will inspire confidence, respect and love for her profession. Indeed every nurse should from the day she enters the hospital, until her graduation, be surrounded by an atmosphere that will fill her soul with the proper spirit and high ideals of the nobleness of her profession.

I think that it shows a lack of knowledge of human nature, and a tacit admission of executive inability to properly handle the situation when a superintendent resorts to any plan of punishment, or method of humiliation to nurses for delinquencies on their part. Nurses should be taught from the day they enter the school, that they are soon to occupy the noblest and most honorable positions that woman can possibly aspire to; their minds and aspirations should be directed in channels that will help them realize and appreciate the nobleness and divine character of the profession they are about to enter. You thus cultivate, feed and stimulate to action the higher and nobler instincts of their nature. Seek the good that is in them, don't fear to let your nurses know that you recognize their good qualities, and that you cherish and love them for the good that is in them. By this method you will soon find that you in turn are so loved and respected that they will strive to please and aid you in your noble work.

The superintendent of nurses who is imbued with the proper spirit, and who is magnanimous enough to reflect in her life and labors the spirit of nobleness of character, as depicted in this article, will become a noted woman; her fame will spread beyond national bounds. Governments have erect-

ed monuments to the memory of peasants for their nobleness of character.

In the nurses' profession we find in the life of Florence Nightingale a character worthy of emulation by every nurse, everywhere. History would indeed be lacking without a portrayal of her character, and no encyclopedia can ever be made complete without her name. Nurses: this distinction is your if you will. You need no Crimean or other wars to gain high distinction in your profession. Opportunities are daily knocking at your doors; the sacred and divine character of your profession, coupled with the eager longing of the souls of humanity, whose lives are placed in your hands, opens up a field of possibilities scarcely equaled in other walks of life. Some of your names can be made to appear in history, and in the new editions of the world's encyclopedias. To reach this distinction, or nearness to it, you must be right, unselfish and just, always remembering your whole duty to the sick, to the nurses, and to the hospital. This ideal standard may appear to some as a fanciful picture, but believe me, what has been done can be done again; but remember, to achieve such distinction, we must adopt similar methods of self-disinterested benevolence; live and labor for the alleviation of suffering and betterment of humanity.

Whenever superintendents of nurses lower their standard to a line of commercializing their profession they cannot hope to reach even mediocrity in professional standing.

The ideal hospital cannot be realized even in our imagination without an ideal superintendent of nurses at the head of her department.

Dietary Department. This department should be under a competent dietitian. She should have full charge of the general diets, and be held responsible for the proper selection and preparation of the special diets. The other minor departments should be under competent heads, each of which should be held responsible for the successful administration of their respective departments.

In the smaller hospitals, several departments can with advantage be placed under the supervision of one head, with responsibility of each on that headship.

The Eight-Hour Law. One month's practical experience under the provisions of the new eight-hour law applying to nurses' training schools, has more than verified the predicted baneful effects of this law. My statement, given in an interview to a daily paper a month ago, that I regard this law as the most atrocious and senseless of all laws enacted by the last legislature, has been forcibly emphasized by a practical test of its requirements. There is not a single redeeming feature in that part of the law which applies to hospital nurses. The law is even more hurtful to the patients, the nurses, and patrons, and the public in general than it is to the hospitals; it will diminish efficiency in nurses' training, make discipline in the schools more difficult, and interfere with the proper care of the sick. The burden of the law will be heaviest on the people of moderate means, who cannot afford the increased cost of special nursing.

Another evil effect of the law is that it will tend to demoralize the training system of the school. It has already been shown that the long hours of idleness are producing a condition of restlessness and discontent; our best nurses are chafing under present conditions, and we are already threatened with discontinuing the training course by the most desirable timber in our schools.

The vital and principal point of benefit aimed at, by the atrocious eight-hour law, has proved a veritable boomerang. The framer or instigators of this law doubtless conceived the idea that by slipping over on the hospitals a law that would please the nurses in training, they could thereby gain the applause of the nurses, their friends, and the public generally, and incidentally be accorded the title of great benefactors. The effect of the law has proven just the opposite from what it was intended; there is not a single nurses' training school in the state that does not feel outraged by it; I don't believe it has to-day one friend among hospital people in the entire state, and its supporters, so far as we know, are not standing in conspicuous places "pointing with pride" to their grand achievement.

During a discussion of this subject Miss Perry, the efficient Superintendent of the Pacific Hospital, Los Angeles, well said that hospital training schools should be classed with other institutions of learning. This certainly is along proper lines of thought; the training school is not a mercantile institution, it is not a hotel, restaurant, or manufacturing establishment, it is in the strictest sense a school, its pupils are not employees, they are students pursuing a course of study, along professional lines.

Every modern and well equipped training school has its curriculum, or prescribed course of study, and a faculty selected from among the leading physicians and other qualified people of their respective cities to teach by lectures on their special topics. While the courses of study may vary to suit conditions of schools, they are in the more essential points practically the same. The following is the curriculum of the Agnew Hospital at San Diego:

Ethics; Massage; General and Special Surgery; First Aid and Bandaging; Anatomy; Physiology; Materia Medica; Urine Analysis and Elementary Microscopy; Diseases of Skin; Contagious and Infectious Diseases; Orthopedics; Hygiene; Stomatology; Practical Nursing; Sepsis; Antisepsis; Fumigation; Surgical Technic; Administration of Medicines; Poisons and their Antidotes; Operative work, and Post Operative care of patients; Bandaging and Splints; and a hundred other important topics taught daily by the superintendent of nurses.

Does this curriculum sound like instructions to factory hands, employees in stores, hotels or restaurants?

Hospitals furnish training schools with every facility for a thorough and comprehensive course of study, both practical and theoretical. Without such practical facilities a complete course of study and training would be impossible. Practical bedside teaching and a scientific lecture course are

both indispensable to a nurse's training. This feature of our paper is not intended for hospital people, but the public should be educated up to these standards, and further: the public should be informed that nurses in training are furnished with lecture rooms, their general equipment, nurses' homes, beds, board, laundry and teaching free of charge. The hospitals in addition give them a small cash consideration, not as a salary, but only as "pin money" to aid the needy in procuring the absolute extra necessities in their course of study. In addition to this, the hospital takes entire charge of nurses during sickness free of expense, including physician, medicines, room nursing, and every care and attention accorded our pay patients.

The eight-hour law is no more applicable to a nurses' training school than it is to any other educational institution.

Suggestion for Useful Law. If instead of the present law, the legislature had provided for a commission of three well fitted, competent, and impartial hospital nurses with adequate salaries whose duties would be to visit all hospitals throughout the state, to overhaul their workings, to see that they were suitably equipped, and properly managed for the care of the sick; to see that their nurses were rightly treated; that they were well fed, suitably housed and properly trained; such a commission would give new impetus to the uplift of the hospitals of our state, and prove a great blessing to humanity in general. This is simply one of many suggestions that might be made along the line of useful legislation for our hospitals.

It was a very wise thought on the part of those who took the initiative in the organization of this Association of State Hospitals. Indeed, it is the only good or favorable thing that I have yet been able to discover as a consequence of this vicious eight-hour law for hospitals. Our organization has a great work before it, independent of this special piece of legislation. I believe its beneficent influences will be permanent; that in future years the hospitals of our state will show great improvement as a direct result of the effort of this association. This work will be a proper foundation for standardizing the hospitals of our state. Had this association been effected two years ago, we would not now be suffering from the evil effects of diabolical law. Besides the many other benefits the hospitals will reap from the frequent interchange of thought of trained minds on lines of their betterment, proper and just laws for hospitals can be assured in the future, as a result of the combined efforts of the members and friends of this association, and we should all bear this feature of our work well in mind.

Special Nursing. I have endeavored to figure out a plan by which hospitals can give their patients a system of special nursing without too severely taxing them financially. This suggestion is intended only for those patients who are financially unable to pay the extra expense of a continuous special nurse, but are willing to accept a form of special nursing which will, I believe, prove satisfactory to such patients.

Under the old system of one special nurse, the patient received on the average about twelve hours actual service, the nurse taking three hours recreation, one hour for meals, and eight hours for sleep daily. I would suggest that the superintendent use two of her nurses to special each case as follows: First special nurse goes on duty at 7 a. m., off at 2 p. m. (seven consecutive hours). Patient is then under the care of the general or floor nurses three hours, or until 5 p. m. The second special nurse for the case goes on at 5 p. m., remaining until 12 midnight. Patient is then again looked after by floor nurses until 7 a. m. (Old system nurses slept during these seven hours.) It will be seen that by this method, the patient is cared for by the floor nurses during three hours, when under the old system the nurse usually took her three hours recreation and meals, and again from 12 midnight to 7 in the morning, or during the hours when the special nurse took her sleep. For the combined services of these two special nurses the hospital could charge \$25 per week, without financial loss, and at the same time give good training in special nursing.

In conclusion: Many people are led to believe that hospitals are great revenue producers, and that most of them are run on a system of "graft"; these charges are both false. Well informed capital will not as a rule enter the hospital field as a money making investment.

Let me urge upon all hospital workers to join in an active progressive movement for general advancement of the hospitals of the State of California, that by interchange of thought, and co-operation we may accomplish the realization of "*The Ideal Hospital*."

IMPLANTATION OF JOINTS.*

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From the Dep't of Surgery, Stanford Univ. Med. Dep't.

In 1908 Lexer reported to the German Surgical Congress two cases of resection of a firm ankylosis of the knee where he had implanted a new joint, taken from a limb amputated for senile gangrene of the foot. The joints were implanted immediately after amputation. They both healed perfectly into place and subsequently showed a fair range of motion. In one of these cases motion was at first hampered by adhesions of the patella to the femoral condyles. On reopening the joint three months afterwards in order to separate the adhesions Lexer had opportunity of observing the state of his graft. He found the joint intact in all its parts, the cartilage was smooth, in the joint cavity there were a few easily removable blood-clots. The implanted epiphyses had united firmly to the adjoining shafts so that not the slightest motion was possible. The crucial ligaments were well preserved, they even bled when scratched with the knife. A small section including cartilage, epiphysis and zone of union with the tibial shaft was chiseled out of the fibial part of the joint for examination. Microscopy showed that union had been brought about by firm connective tissue and by new bone;

the cells both of the joint cartilage and of the implanted marrow stained well and were not necrotic. The following year Lexer reported that this patient had about 45° of motion and a firm, stable limb. Lexer has since performed a considerable number of similar operations, how many his scattered papers do not exactly state.

Goebell very recently reported the implantation of an unopened toe-joint into the finger to take the place of a joint resected for a severe arthritis deformans. The result was so good that the patient, a violin-player, was able to resume his occupation with a good movable finger.

The only American case of implantation of a whole joint of which I have been able to find a record is one of G. T. Vaughan in Washington. He attempted the transplantation of a cadaveric knee-joint after the resection of an openly suppurating tuberculous knee. This case was unsuccessful. The graft became the site of a profuse suppuration and the patient died a year and a half after operation. The cartilage had disappeared, and there was caries of the exposed part of the bone; about two-thirds of the implanted bone had been absorbed, but in spite of the unfavorable conditions under which it lay a large portion of the absorbed bone had been substituted by new growth from the ends of the patient's femur and tibia. I shall revert to a discussion of this important and interesting finding later.

These cases are the only ones I can find of implantation of a whole joint. Half joints have been frequently ingrafted, the most common indication having been that of tumor formation in the head of a bone calling for resection, where an epiphysis has been implanted to make good the defect. Perhaps the most extensive grafts of this kind are Küttner's two implantations of the femoral neck and head following resection for osteosarcoma. Küttner's cases have a bearing on those I should like to present to-night inasmuch as he took his material for implantation from fresh human cadavers. The cadaver as a source of material had already been suggested by Lexer three years before, but these were the first instances of its successful use. Küttner's first case was one of resection of the upper third of the femur for chondrosarcoma. He filled the defect with a corresponding piece of a femur removed eleven hours after death from a man who had succumbed to a brain-tumor. The bone was preserved in Ringer's solution at 0° for 24 hours, making a 35 hours' interval from the time of death to that of implantation. The wound healed by primary intention, the patient walked without stick or crutch and had a considerable range of active motion. Eleven months after operation pulmonary and vertebral metastases began to make themselves apparent and these caused death 13 months after operation. The implanted piece recovered at autopsy measured 17 cm. from head to lower border, showed no traces of absorption and was firmly fixed to the femoral shaft at its lower end by a narrow ring of bony callus. The cartilage of the femoral head was almost entirely smooth, only the border showing some erosion.

* Read before the San Francisco County Medical Society, September 16, 1913.

The whole graft was covered by a membrane which could not be distinguished from true periosteum, and a new joint-capsule had formed around the head of the femur. The muscles inserted firmly to the bone at their normal sites. The second case, a similar one, remained cured for three years and two months, when a local recurrence forced Küttner to exarticulate at the hip.

My own cases are as follows:

The first is that of a man 32 years of age, admitted to the City and County Hospital, Sept. 11, 1911. He had sustained an open, crushing fracture of the tarsal bones, had been operated upon several times with resulting suppuration, and came to the hospital with an ankylosis of the ankle, a resected astragalus, and a uselessly everted foot. He requested amputation, but when implantation of a joint was proposed consented to have it tried. Dr. Russell, in whose service he was, kindly let me have his care. On October 8, 1911, by the kindness of the Coroner's office, the cadaver of a man who had shot himself through the head 10 to 12 hours before, was placed at my disposal. This cadaver was of a very large bony frame, whereas my patient was of a slight build. In view of the fact, however, that it had been necessary to wait almost a month before getting an appropriate cadaver, I decided not to wait until chance should throw one whose bones were more nearly of a size into my hands. I removed about three inches of tibia and fibula together with the astragalus under strict asepsis, placed the bones in Ringer's solution, and kept them on ice at 0°. Several ccs. of blood were taken from the internal saphenous vein for cultures and for a Wassermann test, and some broth cultures were made of the marrow of tibia and fibula. The next morning at eight the culture-tubes were found sterile, and at 11 Dr. Schmitt reported a negative Wassermann test. Hereupon operation was begun, about 36 hours after the death of the donor of the bone. Under local anesthesia a firm bony ankylosis between os calcis, tibia and fibula was freed through a curved incision around the outer malleolus. Later an internal incision was added. The malleoli were resected and a V-shaped space gouged out of the os calcis for the reception of the graft. The cadaveric joint was removed from the Ringer's solution and freed of attachments of muscle, ligaments and tendons. The thin synovia at the front and rear of the joint was left. The bones were much too large for the man into whom they were to be implanted. While trimming them down they fell from the forceps of my assistant to the floor. In another case I should do all the trimming possible first and prepare the bed for the implant afterwards. Here, however, as I had already opened the patient's leg, I decided to attempt the use of the material at hand. I seared the graft in a large alcohol flame for five seconds and carefully cleaned it of all attached tissues, fat, etc., with frequent changes of instruments. As the joint still proved too long and too broad, it was necessary to reduce it until only the median parts of the malleoli and a thin slice of bone of the os calcis and of tibia and fibula were left. It was introduced into the cavity without undue tension and the soft parts united with catgut. The skin was closed without drainage. The leg was put into a cast.

For the first two days everything went well. Then the patient had a chill and developed a lymphangitis up the leg. This receded under alcohol compresses. A week after operation the cast was removed. The joint was not swollen and there was good healing except for a place at the inner side of the ankle from which thin sero-pus came. A forceps was unfortunately introduced into the joint at this place. On December 1st, about seven weeks after operation, suppuration from a sinus

which had formed over the outer malleolus still continued; the inner sinus had closed. The new joint was still movable, but as the patient had considerable pain in the sole of his foot, and as the suppuration did not seem to cease, amputation was decided upon and carried out.

The amputated foot was hardened in formalin, frozen and sawed open. The tibial portion of the graft shows firm fibrous if not bony union; it is firmly attached to the end of the patient's tibia and is of a healthy color. The cartilage is, however, yellow and necrotic. The lower part of the implanted astragalus is also firmly attached and is of good color; the upper part, however, is visibly necrotic. The cartilage of this part is also yellow, but has not exfoliated. Around the bones is a mass of callus thrown out by the remnants of the patient's tibial periosteum which surrounded the implanted joint. This same callus is visible in the X-ray plates of the amputated specimen. I think that careful examination of the X-ray as well as of the specimen itself will convince you that this callus is not thrown out by the graft itself, but by the patient's periosteum. One can still see the

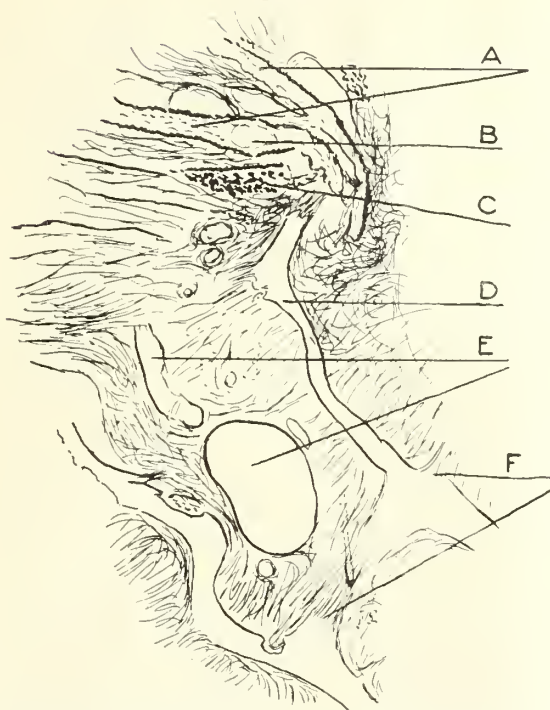
Fig. 1.



IMPLANTED JOINT. X-RAY AFTER AMPUTATION.

thin fibrous layer that divides the graft from the patient's bone and the callus is everywhere situated outside of this thin layer. The microscopic sections show the same thing. I suppose that the heat of the alcohol flame penetrated the deeper layers of the periosteum and injured them beyond repair. The microscopic sections bear out what inspection of the specimen and the good color of the implanted bone would lead us to suspect. We see that although the bony matrix of the implanted graft is dead, as it is in all cases of bone implantation, and contains no stainable bone-cells, it is

Fig. 2.

SECTION FROM EDGE OF GRAFT, SHOWING
PROCESS OF SUBSTITUTION.

A—Invading spicules of new bone, with border of osteoblasts; the lacunae contain well-stained cells.

B—Small island of necrotic bone in midst of live bone (lacunar cells unstained).

C—New osteoid tissue.

D—Spicules of necrotic bone, cells of lacunae unstained.

E—Bloodvessels of marrow.

F—Connective tissue fibrils going over intimately and insensibly into dead bone.

everywhere surrounded by living fibrous tissue. Evidences of round-cell infiltration, of suppuration, and of sequestration are wanting over great areas. We see the fine connective tissue fibrils running directly over into the spicules of dead bone and intimately joining them, not encapsulated around them as around a foreign body. And we see the thin fibrous layer that separates the graft from the patient's tibia everywhere pervaded and invaded by new bone in all stages of formation, by osteoid tissue, by osteoblasts, by all the products of the endogenous callus, of the osteoblasts of the marrow. I should like to call these points to your special attention: This intimate connection and pervasion of the spicules of apparently dead bone by new connective tissue, and the invasion and substitution of the graft by new bone formed from the elements of the marrow. It is here that the living graft shows its superiority over the implant of dead and foreign material. Even under the most unfavorable conditions and in the presence of suppuration all is not lost, the implanted bone where it is absorbed is everywhere substituted by living bone formed from the patient's osteoblastic material, a great part of the graft is organized, and there is little evidence of sequestration. Vaughan's case, referred to in the beginning of this paper, showed the same findings under still more untoward circumstances.

If the graft does not remain alive as a whole it is at least not cast out, it remains a part of the organism into which it is transplanted, and this, after all is what we are striving for;—this is the practically important point; whether the microscope shows life or death of the bone is really a

matter of more or less academic interest only; what the patient wants is that it stay in place and do its work,—and this it does.

My second case was more successful. It is that of a man 28 years of age. He was admitted to the City and County Hospital under Dr. Russell, to whom I first owed the privilege of attending him. He had an extensive cellulitis and teno-synovitis of the hand which I treated with multiple small incisions. The hand healed, but the man had a stiff joint at the base of the ring-finger. He passed from my care as I left the Polyclinic service and an arthroplasty was carried out by two other surgeons. This did not result in giving him a movable joint. He then went to work as an orderly in the hospital, and I owe his subsequent care to Dr. Mackintosh, resident physician. On July 26th I removed a knuckle-joint aseptically from the cadaver of a man who had died of heart disease 12 hours before, and placed it on ice in about 4 ounces of salt solution. On July 28th Dr. Schmitt reported that the Wassermann test had given no more inhibition than was usual with cadaveric sera. The blood cultures had remained sterile. I therefore proceeded to the implantation that same morning, 60 hours after the death of the donor. I resected the firmly ankylosed joint at the site of the previous arthroplasty, and inserted the graft, fixing it in place with two stout catgut sutures passed through drill holes in the ends of the bone. I put the man's hand and forearm in a splint and applied a traction of 1½ pounds to the finger. The wound healed well. At the time of the first two dressings a little blood-serum came from the wound. It has since remained closed. Passive and gentle active motion was begun about 10 days after operation. Traction was continued for a month, at first continuously, then only at night. The patient now has about 35° of active and 60° of passive motion in the joint. There is firm bony union. The X-ray shows a good callus formation. How much of this has come from the graft and how much of it from the patient's bone I do not think that it is possible

to say in a case of the kind where there is always a probability that the graft was placed in a bed whose walls contain remnants of periosteum. The joint surfaces seem to be smooth, there is no rubbing to be felt, nor does the X-ray show any roughness here. Much of the limitation of motion is due to adhesions and fixation of the soft parts, the remains of the old purulent teno-synovitis. The patient is steadily improving, and I hope that time and use of his joint will give him good motility. The resected joint, the site of the previous arthroplasty, showed a firm fibrous, but not a bony union. The tissue forming the union contained fibro-cartilage in places, and in its center a small bursa, the size of a lentil.

These cases open a mine of interesting problems. The first question that presents itself is, what becomes of the implanted bone, is it alive when implanted, and does it remain alive in its new host? This is, of course, the vital question, for if it is dead or dies then the query arises whether we may not as well go back to the era of foreign body implantation, and put in boiled or decalcified bone, celluloid or similar substances. Nothing, I think, is more interesting than the history of this controversy, and nothing shows more plainly how much modern practice lies under the ban of the laboratory experiment. What can be more striking than to see how Ollier's researches of the '60's and '70's, which showed the importance of periosteum in bone-formation, were followed by the careful subperiosteal resections of v. Langenbeck and his school, and by the early successful bone-transplantations, where care was taken to preserve the bone-forming membrane intact. What more vivid illustration of the far-reaching effects of an erroneous observation than to see how Barth, experimenting with grafts of the bones of the skull in dogs came to the conclusion that the whole of the implant dies, and how thoroughly the next decade was imbued with his views. If the implant dies anyway, why go to the trouble of securing a living graft? What more natural conclusion? And following it we find the period of the implantation of celluloid, silver plates, decalcified bone and other foreign bodies. Transplantation of living bone was almost universally given up;—but a very few surgeons had enough confidence in their own powers of clinical observation to imagine that the laboratory could be wrong, and that living bone was better than celluloid, or dead bone even. It is interesting to see how the studies of Axhausen, published five and six years ago definitely settled this point at least;—that *part* of the implanted bone lives and remains alive, and led us back again to our modern era of bone-transplantation, of transplantation of the living graft.

Axhausen would have it that although the greater part of the implant, viz: most of the solid bone, dies, a certain part lives, viz: the outer, immediately subperiosteal layers, and the inner, cancellous subendosteal layers;—and furthermore and most important of all, that these bone-forming membranes, periosteum and endosteum themselves remain alive and proceed to form new bone.

I think that this is true in the main,—one can easily verify many of these facts by studying

microscopically fragments of bones extracted in fracture operations. We have in the fragments of a comminuted fracture an autoplasmic bone-graft under ideal conditions. The fragments lie free in an ideally nutritive aseptic medium,—in the blood clot and tissue juices which are poured out around the fracture. An isolated fragment from a fracture of the tibia gained at operation, which I have under the microscope shows how a great part of the bone is necrotic, while a small part is not, viz: that part lying immediately around the Haversian canals, around the channels bearing blood vessels and connective tissue cells and offering access to the entrance of the surrounding nutrient juices of the body. Now if a great part of the bone in an ideal implant of this kind, in a simple non-infected fracture, becomes necrotic, how much more will bone that we remove from another individual, expose to the air and implant in an operative wound suffer? Almost all of it will die, and *does* die;—but luckily it is only the hard bony matrix and its cells that perish,—more or less inert tissue at best; the vital part of the bone, the osteoplastic, the regenerative part, the periosteum and a great part of the osteoplastic marrow survive.

I recognize that I am treading on uncertain ground here, and that I am in entire disaccordance with Macewen's opinions. Macewen denies all bone-forming power to either periosteum or endosteum, and regards the bone-cells themselves, the cells of the lacunae as the regenerators of bone. I do not think that this can be denied a priori. The cells of the lacunae are certainly closely related to those of the periosteum. They are derivatives of the cambium layer of periosteal osteoblasts, are these cells themselves in fact, in a later stage of development, and there is no ground for denying the assumption that were it possible to free them of their hard osseous envelope and reinvest them with the possibility of free proliferation and expansion, that they could revert to their primary state and reform bone. There is no a priori reason for denying this assumption, but I do not think that it has been proven. There is not a bit of microscopic evidence in all of Macewen's book, and it is only on microscopic evidence that this controversy can be settled and the growth and formation of bone be elucidated. Until Macewen gives us such I think that we must regard his theory of bone formation by the cells of the lacunae as unproven. That new bone is thrown out around bone-shavings, or even by them proves nothing, even minute fragments of bone carry with them endosteal osteoblasts and the osteoblastic layer of the Haversian canals, new growth of bone may take place from these elements as well as from the cells of the lacunae themselves. So that I do not think that we are in a position as yet to finally answer this question of "What keeps the bone alive?" If, however, we ask "*Does* the implanted bone stay alive?" then I think that we can state that enough of it does at any rate to lead to a perfect regeneration and reformation throughout its substance, and that *this regenera-*

Fig. 3.



FRAGMENT FROM COMMUNUTED FRACTURE OF TIBIA.

A—Disintegrating bone, lamellar structure gone, some shadows of empty lacunae still visible.

B—Haversian canal, bearing bloodvessels, neighboring bone shows lamellar structure, most lacunae contain well-stained cells.

tion takes place in part from the elements of the graft itself. This is the vital point, and the reason that a living implant is so much superior to a dead one.

That much of the compact bone becomes necrotic is a matter of indifference. We have to differentiate clearly between necrosis and sequestration. This distinction is not made nearly clear enough. In talking over my first case of joint implantation with a surgeon the other day, he related a similar instance where the graft had fallen to the floor and where he had immersed it in iodine. It was evidently alive he said, "because it is now several months since operation and it hasn't come out." Now that has nothing to do with its being alive. That the piece stays in does not prove whether it is alive or dead. Why should it come out if it is dead, provided it is aseptic? Catgut and Lane plates, and silver wire are surely not alive, and yet they do not come out. So that the fact that a large part of our bone-grafts, almost all of the compact bone, becomes necrotic need not lead us astray. It will not come out if it is aseptic, and sometimes not, even if it is not. The slide shows this beautifully. Here we have a bone-graft under the worst possible conditions, a large mass of bone in the presence of infection, and yet in many parts we see these necrotic bony spicules intimately attached to the surrounding scar, the fibrils of new connective tissue growing over almost insensibly into the implanted bone, and we see around them no evidences of round-cell infiltration nor of other effects of the organism to rid itself of this necrotic tissue as of a sequestrum nor yet a thick fibrous encapsulation as around an aseptic foreign body. Why this apparently necrotic bone acts in this way I do not know. As far as the microscope can say the bone is certainly necrotic, its cells do not stain, the lacunae are apparently empty, the matrix is finely granular, and yet we find no evidences of sequestration, round-cell infiltration or encapsulation as always appear around a silver wire or a silk thread or other foreign body. This is remarkable enough,

and herein lies the superiority of the living graft over all other material we may implant.

Another interesting problem: Are not these implanted joints liable to subsequent degeneration, to deforming joint affections? We know that deforming arthritis may be induced experimentally by making an aseptic necrosis of the joint cartilage and the underlying bone. Some observers have even gone so far as to seek in this aseptic necrosis the primary etiologic factor in the production of deforming arthritis. If, then, in the most successful of grafts we have large masses of necrotic bone and some necrotic cartilage, will not the implanted joint be the seat of a subsequent deforming arthritis? Küttner's cases answer this question better than all theoretical discussion. In his extensive implantation of the upper third of the femur he found no arthritis when the case came to autopsy 13 months after operation. And you will concede that this joint—the hip, particularly predisposed to arthritis, and this extensive graft, containing over 6 inches of massive bone, should offer ideal conditions for an arthritic degeneration. My finger-joint appears perfectly smooth two months after operation, although it is, of course, too soon to say whether it will remain so. Time and a wider experience will answer this question of arthritis.

I will not take up more of your time with these theoretical problems.

As to the choice of procedures. Implantation of joints has its chief rival in arthroplasty as developed by Murphy. While the indications for each may leave some room for discussion, each has a field of its own. The Murphy operation has certainly the advantage of utilizing the patient's own tissues, and doing away with the implantation of a mass of foreign even if living material. It does not involve search nor waiting for a donor, be this a cadaver or a living patient. It runs less risk of infection, always a possibility with cadaveric material. On the other hand there are certain cases where Murphy's arthroplasty would not be feasible. In ankylosis of the knee after injury, with extensive crushing and scar formation in the

soft parts, for instance. And particularly in implantation of half-joints after epiphyseal resections for malignant growths; here we must implant in order to get a useful limb. It is too early to compare the definite results of the two procedures. In one case at least, my second, transplantation has given a promising result where arthroplasty had failed.

As to the source of material: There are two possibilities; amputated aseptic limbs, and the cadaver. Few of us have an amputation material large enough to rely upon. Lexer performed a number of high amputations for dry senile gangrene which put fresh aseptic joints at his disposal. Aside from the fact that many would prefer a more conservative course in these cases, this material necessarily has its limitations. It will never put us in possession of a hip-joint. Besides dry gangrene is rather rare in this country. The material of a railroad hospital, with a number of high crushing injuries of the limbs might make a further number of aseptically amputated joints available. Still I think that there can be no question that cadaver material is more easily procured. It has, of course, a number of disadvantages; the risk of infection first, and a certain aversion, more or less sentimental perhaps, to the use of cadavers,—on the part of the surgeon to implanting mortuary material, and of the patient to carrying it about in his body. This may be serious enough at times. One of Lexer's patients, a Russian, became so obsessed by the idea that he was carrying a dead man's bones about in his flesh that he had no rest until the perfectly successful graft was amputated. However, the risk of infection stands foremost. This is not as great as it might seem if proper restrictions are observed. Bergemann made bacteriological examinations of the bone-marrow from the femur and tibia in 20 cadavers, among them many who had died of infectious disorders such as peritonitis, pulmonary gangrene, etc. All cultures taken up to 24 hours after death showed no growth, but one, which was sterile 24 hours after death, showed a growth 44 hours after, and this was a case of diabetic gangrene. Personally I should not like to use the joint of a man who had died of a disease in which infection played any part whatsoever for implantation.

I should like to urge the following precautions: The joint should be removed as soon as possible after death, preferably within the first 12 hours, certainly within the first 24. Decomposition must not have set in; the body should have lain in a cool place. The cause of death must have been a non-infectious one; preferably accident or injury, apoplexy or sudden heart failure would also offer suitable material. Death should have occurred quickly without long agony. The reason for this is that patients who are long moribund often develop pulmonary edema and broncho-pneumonia, and with them we run a certain risk of a terminal pneumococcic septicemia. Simultaneously with the removal of the joint blood should be taken from a vein of the limb central to the joint for a

Wassermann reaction and for culture, and portions of the bone-marrow scooped out and incubated in broth. Unless the cultures are sterile and the Wassermann test negative the joint should not be used. By observing these precautions I think that we can avoid risk of infection. Of course, this means a delay of 24 hours in implanting the joint. This, I think, does no harm. All of these grafts are homoplastic ones;—from one individual to another, and there is no question that the tissues of one individual when grafted into a second one of the same species will not grow as well as would his own. This difficulty in getting homoplastic grafts to take seems to be due to the difference in the body-fluids of different individuals. I have gained the impression that if we wash out these foreign body fluids by placing the implant in a considerable quantity of sterile Ringer's solution for 24 hours the grafts take better. I have not enough evidence to state this positively, but I have the impression. If further experiments prove corroborative this would be a finding of some importance.

The bones should be freed of all adherent tissue, muscles, tendons, ligaments, fat, etc., before implantation. The multiple small incisions into the periosteum which their removal entails are of advantage. Adherent muscle or fat impedes the access of nutrient plasma and blood vessels, and imperils the life of the graft. Whether or not to take the synovial capsule with the joint is a question. Lexer advises against it, and suggests a secondary implantation of this membrane should a new capsule not form around the graft. There are arguments both for and against a primary implantation of the synovia. Synovia certainly impedes access of the body-fluids to the joint surfaces, and introduces a rather delicate tissue into the wound, on the other hand it prevents the proliferation of new connective tissue into the joint and erosion of the cartilage by this pannus. These considerations may be more theoretical than practical. Lexer not including synovia found no overgrowth of the cartilage by connective tissue, and in one case where he did implant synovia the wound began to break down two months after operation, and signs of sequestration and extrusion of the graft began to appear. Küttner found that a new capsule had formed around the head of the femur which he implanted. In my first case I intended to use the synovia, but had to remove most of it in order to make the joint fit. In my second case I implanted the synovia with success. I think that its use may probably be indicated in smaller joints, but that in larger ones, where large masses of bone are used, it had better be trimmed off.

A few words as to technic. Perfect asepsis is a sine qua non. The skin of the cadaver is scrubbed with pure lysol. A flap of skin is outlined and turned back out of the way. The joint with enough additional bone on each side to furnish material for a skewer if need be, is removed, placed in sterile Ringer's solution and kept on ice. Blood is withdrawn from a vein above the joint for a Wassermann reaction and culture. Some bone-

marrow is scooped out, placed in broth and incubated. The patient is prepared with iodine, and is operated upon the next day, if cultures and Wassermann test prove negative. A semilunar or horse-shoe flap of skin is outlined about the site of the proposed implantation, care being had that the incisions of the skin and the underlying soft parts are not superimposed. If they are there is danger of leakage and subsequent sinus-formation. Adherent tissues are trimmed off the periosteum, and the bone sawed through as close to the joint as the exigencies of the case will permit. I think it best to implant as little adjoining bone as possible in order to limit the amount of foreign material and to hasten the pervasion of the dead compact bone by substituting callus. If possible the ends of the bones to be grafted and the ends of the patient's bones are shaped so that they will fit securely and hold themselves in place automatically. This may be done by cutting them to a V-shape, or if practicable, mortising them. The joints are very slippery as my disastrous experience with my first case taught me. When working with them a large basin or sheet should be placed beneath the operator's hands, so that if the joint does slip it will not fall to the floor. The bones are held in place by means of stout catgut passed through drill-holes. The holes should be drilled, and loose loops of catgut passed through them before inserting the joint into its seat. It is easier this way, and the catgut will prevent the joint slipping from the operator's hands during the manipulations necessary to force it into place. Wire, staples, nails or other dead material should not be used for fixation. If catgut will not hold a skewer of periosteum-covered bone may be used. The soft parts are carefully approximated to and about the joint with catgut, and the wound closed without drainage. It is covered with gauze moistened in campho-phenol, which makes a good antiseptic dressing and cakes with the blood that oozes from the wound to make a splint. Long adhesive plaster strips for traction are applied all the way up the limb, and the whole is put up in a splint or in plaster of paris. Traction is put on as soon as the patient reaches his bed. Gentle passive motion is used in about a week. Early motion is encouraged, massage, etc., not neglected. Traction is kept up for a month or longer; after the first fortnight it may be left off during the day and used at night only. While motion is encouraged, the implanted joint should not bear weight for a considerable time. Lexer advises six months for the knee-joint. In the course of after-treatment various mobilizing procedures, muscle- and teno-plasties, etc., are often necessary in order to reestablish satisfactory function.

To Conclude:

1. Implantation of joints is a feasible and useful procedure.
2. Much of the implanted bone becomes necrotic; it is not shed, however, but amalgamates, and is absorbed and replaced by living bone.

3. A small part of the implanted bone remains alive, viz: the superficial inner and outer layers.

4. Much of the implanted periosteum and endosteum remains alive, and is probably the source of the new bone.

5. A subsequent arthritis deformans does not seem to develop in the new joints.

6. The fresh cadaver is the most practicable source of material.

7. Only fresh cadavers of patients who have died suddenly of a non-infectious disease should be used.

8. Absence of infectiousness should be assured by bacteriological and serological tests.

Discussion.

Dr. J. Rosenstirn: I have seen the cases of joint transplantation shown by Lexer in Berlin, at the annual meetings of the German Surgical Society, but have had no personal experience myself. I can only congratulate Dr. Eloesser upon the very excellent result in the transplantation of that small joint. I am sorry that the other was spoiled by the inattention of his assistant, as I suppose that, under other circumstances, he might have had an equally good result.

Dr. Harry M. Sherman: In the case of a lacking phalangeal head, I once planned to transplant the head of a toe phalanx into the hand, and it seems to me that this would be the more obvious thing to do because of the greater expectation of satisfactory healing and function in the case of homoplasty instead of heteroplasty. I was not permitted to do the operation, consequently I have no result to report.

Dr. S. L. Haas: I would like to ask if the transplantation of a piece of bone with attached cartilage is to be considered as the transplantation of a joint.

Along the line suggested by Dr. Sherman, there has lately been reported by Goebel the transplantation of a phalanx of a toe in toto to take the place of a diseased phalanx of the finger. After one year he reports a successful result. The same has been done in making the bridge of the nose. Murphy transplanted the whole phalanx of the toe into the nose. After one year the entire graft disappeared, which he ascribed to the failure of obtaining apposition of bone with bone.

It seems to me that in the cases reported you are not really transplanting a joint but that it is simply transplanting a piece of cartilage and bone. It is interesting to study what happens to the periosteum, cartilage and bone in these transplantations. Some experimenters report that the perichondrium and the underlying cartilage remain alive but that the deeper cartilage disappears.

In the case of Dr. Eloesser's patient, if you resected the end of the metacarpal you could also obtain a movable finger. The resistance at the base of the finger is removed but by applying extension for several weeks a fairly useful finger results.

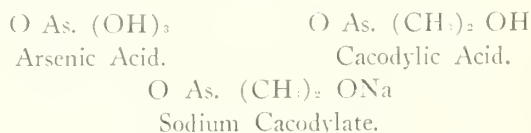
I have had a couple of cases of diseased phalanges with stiff joints in which I resected the middle part of the phalanx up to the articular cartilage, and then transplanted a piece of healthy bone into the defect. In one case flexion of 30° and in the other of more than a right angle was obtained. It is interesting in these cases where you remove everything up to the thin cartilage plate, then interposing a piece of bone that you get union, and in time the formation of a new phalanx.

TOXIC EFFECTS OF SALVARSAN.*

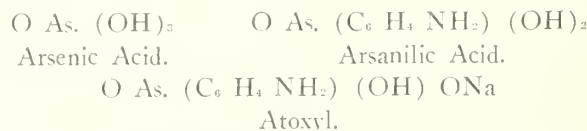
By GEO. E. EBRIGHT, M. D., San Francisco.

Without decrying the use of salvarsan in cases where it is properly indicated and where experience has shown it to be a most potent remedy, it is desired in this paper to call attention to some of the accidents following its use which have appeared in the literature, and to discuss those cases of arsenic intoxication resulting from it in whom there was no evident contra-indication.

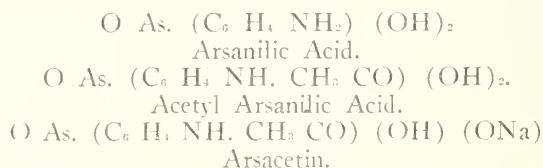
Synthetic arsenic compounds have been in use for some time,—as sodium cacodylate, atoxyl, arsacetin. Sodium cacodylate is a sodium salt of cacodylic or dimethyl-arsenic acid, which differs from arsenic acid by replacement of two hydroxyl groups by two methyl groups. Thus:



Atoxyl is sodium arsanilate. Arsanilic acid differs from arsenic acid in that one hydroxyl group of the arsenic acid is replaced by an amino-benzene. Thus:



It is a relatively stable salt of arsenic acid quite soluble in water and practically neutral in reaction. Arsacetin or sodium acetyl arsanilate is the sodium salt of acetyl arsanilic acid, which differs from arsanilic acid in that one hydrogen atom of the amino group is replaced by an acetic acid residue. Thus:



The Ehrlich-Hata preparation which we know as salvarsan is distantly related to sodium cacodylate, atoxyl and arsacetin. Its structural formula is

$\text{NH}_2. \text{OH. C}_6\text{H}_4. \text{As: As. C}_6\text{H}_5. \text{OH. NH}_2$
which chemical constitution may be indicated by the name diamino-dihydroxy-arseno-benzene.

The arsenic content of salvarsan is 35.16%, so that in the average dose of 0.6 gm. of salvarsan the patient receives about $1\frac{1}{2}$ grains of metallic arsenic. Neosalvarsan is similar in action to salvarsan, having the advantage of solubility in water and freedom from the danger of acidity. The arsenic content in three parts is equal to two of salvarsan, so that the average dose is larger, being for men 0.75 gm. Elimination of arsenic after intravenous injection

of salvarsan is slow. In Alt's clinic where salvarsan was first used by Dr. Hoppe it was found that arsenic was eliminated in the urine slowly and found as late as the 11th day,—0.3 of a gram had been given. Bornstein¹ found upon examination of some cadavers who two weeks to several months before death had been subjected to injections of salvarsan, that the arsenic was stored up in the liver, kidneys and spleen.

Certain organic diseases are an absolute contra-indication to the use of salvarsan, while the presence of others require its use with caution. According to Ehrlich, the triad, aortitis, coronary sclerosis and myocarditis should absolutely contra-indicate the use of the drug. The elaboration of that rule demands the exercise of caution where there is disease of the blood vessels, all myocardial diseases of the heart or nephritis either acute or chronic. Advanced diseases of the cerebro-spinal system, as tabes dorsalis, where considerable damage has already been accomplished, are contra-indications, and also in those conditions where syphilitic meningitis comes into question it should be used with great care. Death has followed its use repeatedly in cerebro-spinal lesions at which the autopsy showed leptomeningitis, generalized congestion of the brain or a reaction of the syphilitic focus involving a vital center. General paresis is a contra-indication to the use of salvarsan for similar reasons. Disease of the optic or auditory nerve of central origin probably should be considered a contra-indication. J. F. Schamberg² collected fifteen cases of optic neuritis following salvarsan and nineteen cases of auditory nerve disturbance in something like 50,000 cases. It may be that this collection was incomplete. In addition, accidents may happen from salvarsan without appreciable cause. Mann³ reports a salvarsan accident in a strong patient who had always been well. Three days after intravenous injection the patient became unconscious with complete loss of all recollection and sensibilities. This lasted three days and gradually subsided. Kannengiesser⁴ observed in a robust butcher of 29 epileptiform convulsions three hours after injection, followed by death. Autopsy failed to show satisfactory explanation. Gaucher⁵ reports a corpulent man who upon examination showed no cardiac, renal or cerebral trouble, and four days after 0.6 gms. of salvarsan the patient was found lying in his room completely unconscious and moving convulsively. The following day he was in the same stupor, convulsive crises recurred, cyanosis, perspiration, rapid pulse, a rise of temperature to 105° F.,—at autopsy a leptomeningitis. Another case was of a man of 21 who at autopsy showed generalized congestion of the brain and lungs.

The Italians experimenting in the earlier history of salvarsan found that small doses apparently caused an increase in the syphilitic process, apparently only sensitizing the patient to the action of the spirochetæ.

Naturally, the thought that occurs in considering these reported cases is the question of anaphylaxis and cumulative action.

Case 1. Minnie B., housewife, age 35, was ad-

* Read before the California Academy of Medicine, July 20, 1913.

mitted to hospital six months after an initial lesion on the vulva and presented a general syphilitic eruption with mucous patches in the mouth and enlarged glands. She had had malaria, was a sufferer from epilepsy which had begun when she was fifteen years old and had continued to the present time, the attacks occurring previous to her menstrual period, and occurring sometimes three times a day. She was addicted to the use of alcohol. The heart appeared normal, the urine showed a trace of albumin, no casts were found. The patient was given 0.6 gms. of salvarsan intravenously and within a few minutes there followed an epileptiform convulsion after which the patient sank into a coma and died in three days. No autopsy. This case is possibly similar to the one described by Kannengiesser, and suggests anaphylaxis, although it has to be admitted that in the absence of an autopsy nothing definite can be said.

Case 2. John X. This patient is a man 51 years old, a wool sorter by occupation who twenty years ago contracted syphilis, with the usual secondary manifestations. Three years ago he began to have symptoms referable to multiple syphilitic sclerosis of the brain and cord, which at the time interfered with his walking to a considerable extent.

At the present time he has a marked Rhombberg, slight nystagmus, unequal pupils (old iritis), incontinence of the bladder, intractable constipation, as well as increased knee reflexes, double Babinsky, but no sensory changes and no Argyll-Robertson pupil. In short multiple motor tract lesions. The interesting point in this case is that after the last dose of salvarsan which he had two months ago, his constipation became extremely bad, while prior to that time it was only moderate. It would seem in this case that focal edema following the salvarsan injection in the cord caused damage to the already impaired center of defecation, and while this man still must be considered syphilitic, he should be placed in the class where salvarsan is contraindicated.

Case 3. Mr. D. H. D., age 34. This patient presented himself October 18, 1912, having had recurrent ascites for the preceding seven months for which he had been repeatedly tapped, and for which an exploratory laparotomy had been made, when the operator found "a large malignant tumor occupying the right lobe of the liver and firmly bound to or directly involving the colon, gall bladder, duodenum and pylorus. This operation followed seven months' treatment based on a positive Wassermann." Physical examination showed when he came to me, a large, irregular liver extending about to the umbilicus and the abdomen full of ascitic fluid; examination of urine negative and Wassermann; complement fixation reaction for syphilis was strongly positive. A diagnosis of syphilitic hepatitis was made and patient started on the usual treatment of mercury and iodide. In addition he has received to the present time, July 26th, six doses of salvarsan and the fluid has been drawn from his abdomen innumerable times. The salvarsan treatment was followed by promptly beneficial results, so that after the second injection he was able to go from 22 to 24 days without paracentesis of the abdomen instead of every seven to ten days as before. His record shows that on November 23, 1912, he received 0.6 gms. of salvarsan, and neosalvarsan on December 14, 1912, January 31st, March 26th, and July 2, 1913. With the exception of the last injection no unusual ill effects were observed, but immediately upon the fifth injection he noticed a very strong taste in his mouth which he found it difficult to describe. He felt ill on the way to his home, was dizzy and nauseated,—went immediately to bed and has no recollection whatever of the events during the succeeding week. Two days afterward his family sent for me and I found him in bed in an extreme agony of nervousness.

He had been vomiting for about two days, had complete anuria which lasted altogether three days, and a subnormal temperature. Physical examination showed the mucous membranes very dry and the cutaneous nerves, especially of the forehead, very sensitive and painful. Marked icterus was present. The patient was in a dazed mental condition, although he could be roused, and would talk. The lungs showed nothing. The heart was rapid and the pulse very weak. During the succeeding two or three days he expectorated some rusty sputum (although nothing was to be found upon examination of the lungs), and developed a very extensive herpes labialis. With the return of the renal function the urine showed the usual signs of a severe acute nephritis which has been during the last three weeks gradually subsiding. At the present time also he shows heavy desquamation of his hands and feet, and, to a lesser degree, of the skin of the entire body. There is formation of the skin over the trunk. He therefore had, following this neosalvarsan, a very severe arsenical poisoning. For several days it appeared that the patient would certainly die, so great was the degree of arsenic intoxication.

The lesson to be learned from this case is by no means clear. It is possible that the cases with syphilis of the liver respond in a somewhat different manner from others; it is possible that there was an error of technic, although the ability of the man to whom he was sent for salvarsan injection, in my opinion, precludes that consideration. It may be, as is most likely, that in some manner which we do not know there occurred cumulative action of salvarsan. It is to be regretted that the urine was not tested to determine the duration of the arsenic elimination after each dose, as would appear to be advisable where repeated injections of salvarsan are to be employed.

Finally, the question of anaphylaxis comes into discussion upon the ground that the preceding doses had sensitized the patient, and this hypothesis may be borne out by the case of Kannengiesser already mentioned.

REFERENCES.

- 1 Deutsche med. Woch., Jan. 19, 1911.
- 2 Jr. A. M. A., May 20, 1911.
- 3 Muenchen med. Woch., Vol. 58, No. 30, p. 1672.
- 4 Muenchen med. Woch., Vol. 58, No. 34, p. 1806.
- 5 Jr. A. M. A., Vol. 57, No. 25, p. 2007.

Discussion.

Dr. L. S. Schmitt—The reactions of patients to salvarsan should be divided into two classes: one, the very definite arsenical poisoning, and the other the so-called Huxehimer reactions, whether on the skin or in the internal organs.

Dr. Schmitt—It seems that patients with liver and central nerve involvement undoubtedly react stronger to salvarsan than other classes of luetics. This is manifested mainly by a flare up of the lesions. The hepatitis we have in lues is accompanied by a marked increase of interstitial tissue. There is a sudden breaking down of this interstitial tissue, and the bringing of salvarsan into close contact with the foci of spirochaetes would undoubtedly cause some of the reaction in this particular instance.

As to the unconsciousness, we know definitely that leptomeningitis is common, and when mercury has been given with salvarsan and immediately following it, the percentage of cases of unconsciousness, severe headaches, or other conditions referable to the central nervous system, are markedly less. I recall an instance of a man who had an infection forty-one years prior to the appearance of the hepatitis. The first dose of salvarsan brought on a rather severe reaction, so much so that we were afraid of the outcome. We used salvarsan the second time, following it with

mercury intravenously, without any reaction. We can infer from this and other evidence that we have a definite reaction from the luetic source as well as from the arsenical condition.

As to the question of anaphylaxis, I believe the use of that word in connection with the drug is erroneous.

We ordinarily have a marked complement fixation reaction in lues where the liver is involved, probably due to the fact that there is a marked increase of lipoid substances in the liver; therefore we undoubtedly get very marked reactions in such luetics as these. This man will undoubtedly have a complement fixation reaction for some time to come and this should be considered from two standpoints: one—whether it measures the virulence of the infection; the other—does it measure his reaction to the infection? If the latter is true, a marked reaction should not alarm us at all in this class of cases. However, the so-called Wassermannfast individuals have a greater chance of recurrence than those in whom the reaction eventually becomes negative.

Major Roger Brooke—I have seen several unfortunate results following the administration of salvarsan. I remember late in 1910, or early in 1911, when we first received salvarsan in the Philippines, many patients applied for treatment that had no active manifestations at the time. There was one man who was given a dose intramuscularly and sent to the ward. He appeared all right and after lying down a little while got up and ate lunch. At 2:30 the ward man reported the patient unconscious, and I went to look at him. He had stertorous respiration, could not be aroused, and that condition kept up for three days or until the end. The man could apparently hear, but could not talk or move his arms or legs. He could, however, move his eyelids. He apparently understood questions and would indicate yes or no by opening or closing his eyelids. About eight hours before the end he developed a retraction of the head and at autopsy we found meningitis with a moderate amount of exudation. As far as we could find there was no evidence of meningitis beforehand.

A year ago I saw two other cases which shortly after the administration of salvarsan developed symptoms that simulated quite closely the hebephrenic form of dementia praecox, but they followed within twenty-four hours of the injection of salvarsan and cleared up within three or four weeks.

Dr. Harry E. Alderson—I would like to ask Dr. Ebricht if he said that the last patient had desquamation of the skin elsewhere than on the palms and soles. (Dr. Ebricht replied affirmatively.) The desquamation on the palms and soles is rather fine in character and, taken in connection with the generalized desquamation, it occurs to me that it may have been due to some other form of toxemia. One specific result of the action of arsenic on the skin is the appearance of keratoses and hyperkeratoses of the palms and soles. This man had a series of injections of salvarsan, and if the arsenic effect was so great, why did he not develop keratoses of the palms and soles and other parts instead of a generalized desquamation?

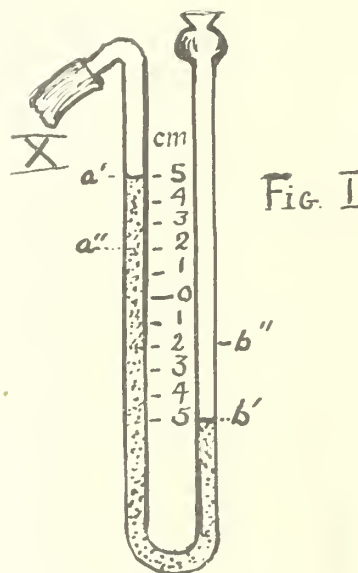
Dr. Ebricht, closing discussion: Salvarsan should be withheld in cerebrospinal cases at least until other forms of treatment have been tried.

HOW TO READ THE PNEUMOTHORAX MANOMETER.

By EDWARD VON ADELUNG, M. D. Oakland.

Now that the value of induced pneumothorax in the treatment of pulmonary tuberculosis is being generally recognized, it is of considerable importance that the records of different observers should

be easily understood by their readers. All workers in this field agree that the manometer is an essential part of the apparatus and that it is absolutely essential to a proper estimation of intrathoracic pressures. Under these circumstances it is somewhat surprising to note that various workers are reading and recording their manometers differently. So that at the present time one is at a loss to know what a writer means by his figures. To make my meaning clearer I will take an illustrative example.



In Figure 1 the ordinary manometer is depicted, being simply a U glass tube, filled with water to zero. Thoracic pressures are transmitted through a tube X, and depress (positive pressure) or "suck up" (negative pressure) the fluid. If the pressure varies as during breathing, of course the columns will oscillate. For example, the left column Figure 1, under negative pressure, oscillates from a' to a'', and simultaneously the right oscillates from b' to b''. During breathing they are in constant motion. Now the question answered so variously is how should the manometer be read.

Should one read in this case negative pressure 5, the top figure to which the left column rises; or 2 the lowest mark above zero that it reaches; or 10, the difference between the tops of the two columns when they are at their maxima; or 4, the difference between them when they are at their minima; or should one read the figure in the middle of the space covered by the oscillations between the maximum and minimum on one side of the manometer—in this case 3.5; or, finally, should this figure be doubled making the reading 7, the MEAN PRESSURE?

Such is the confusion of possibilities that present themselves to some minds. Of course there can be but one correct reading. Physics has long ago made clear that the pressure is measured by the column of fluid supported. Now the column supported is that portion of the longer column above the top of the shorter. The correct maximum reading in the given example is, therefore, negative 10, while the correct minimum reading is negative 4.

But under these conditions some would read maxima, and some would read minima. So we still have something to agree on. It is here suggested that **MEAN PRESSURES only be recorded.** In this example the mean pressure is negative 7.

IRITIS; SOME FACTS OF GENERAL INTEREST.*

By VARD H. HULEN, M. D., San Francisco.

This subject has been suggested to me by several recent personal observations in which eyes have been damaged and even vision totally lost from iritis intercurrent with general disease. This important condition not being promptly recognized, correct treatment was too long delayed and valuable sight sacrificed while the patients were under the care of general physicians otherwise skilful and competent. Notably one of these patients, while under legal restraint, confined to bed by "rheumatism," had an insidious attack of iritis which destroyed the sight of his only useful eye before the official doctor appreciated the importance of the ocular condition. The patient himself asked that atropine be used, believing from the similarity of the symptoms that his other eye had been lost from the same cause some years before. From an economical standpoint the city could have better paid the full fees of an oculist for months' attention in order to have prevented the fate of this prisoner.

Any physician who for as much as one day assumes the responsibility for an eye should be able to distinguish iritis in any of its ordinary forms. To my mind it would not be an extreme position to demand of every candidate for licensure a satisfactory answer to the question in one form or another, "Give the differential diagnosis of iritis." The privilege is therefore taken of addressing exclusively physicians in general practice.

For our purpose here we need not distinguish between serous, plastic or purulent iritis, nor whether the deep or only the superficial tissues are involved, we may overlook a papule or gumma, it is not even necessary to decide as to the involvement of other ocular tissues besides the iris. Leave it to the specialist to study the fine points and observe instrumentally the minute eye lesions, but do you decide correctly and promptly the presence of inflammation of the iris if you wish to conserve invaluable vision and avoid intolerable and prolonged suffering.

The eye can in no sense be considered an organ separate from the body, in fact, through the iris as part of the circulatory tunic of the eye, it is in direct connection with the circulation of all the organs. An infection in the general blood stream pervades the circulatory coat of the iris and a reaction takes place there which may or may not be perceived. Furthermore, disease of the iris seldom arises in its own structure. The infection may be exogenous, i. e., through a wound of the external surface of the body, or it may come from within, endogenous. All physicians are familiar with the fact that iritis occurs very frequently in

the secondary and tertiary stages of syphilis, it does not occur in the primary stages for the spirochaete must have entered by way of the circulation after the blood has passed through the lymphatic glands. It occurs in both the inherited and acquired forms.

Tubercular iritis is occasionally seen.

It is well known that "rheumatic or gouty patients" frequently suffer from iritis, but true articular rheumatism not of gonorrheal origin is rarely accompanied by iritis. It may occur in the indefinite chronic rheumatism of the non-articular type due frequently to toxins derived from urethral gonorrhea or other local infection; but it is in the articular rheumatism of gonorrheal origin that frequent and severe cases of iritis are seen. Remember that plastic iritis of gonorrheal origin may possibly be accompanied by metastatic conjunctivitis also.

Streptococcic tonsillitis gives a systematic poisoning simulating rheumatism and a concurrent iritis is possible.

Purulent localized infection in various parts of the body may cause iritis non-suppurating in character for the bacteria may lose something of their virulence in the serum and because the number finding a habitat in the uveal tract is not sufficient to produce a true suppuration in such a vascular tissue.

Auto-intoxication with the urinary findings of intestinal putrefaction may give iritis, and this as a cause of inflammatory condition of the eye is not infrequently overlooked.

When one recalls that patients while suffering from lues, gonorrhea, rheumatism, gout, tuberculosis, acute infectious diseases, influenza, malaria, typhoid and other febrile diseases, trauma, localized infections in various parts of the body, such as septic uterine conditions, sinusitis, alveolar abscesses, etc., etc., may have at any time an attack of iritis come on insidiously or otherwise with rapid destruction of vision in one or possibly both eyes, it behooves all medical men to be on the lookout for and familiar with the signs of this disease. Not permitting eye symptoms to be obscured by the general disease, which is particularly easy where the ocular symptoms seem mild and at first unimportant, and especially so when confined, as is usual, to one eye. Should the eye symptoms occur during any of the conditions mentioned, do not, in Heaven's name, resort to "simple treatment," but first make a correct diagnosis or at once call some one who may.

When pain in the eye, photophobia, lacrimation, clouding vision, ciliary injection, etc., supervene in sickness, the family physician must at least differentiate the three eye diseases: iritis, glaucoma and conjunctivitis, and this he may do with the unaided sight and touch. No teacher of ophthalmology should permit a student to complete his medical course without trained faculties sufficient to diagnose the ordinary eye conditions with special stress upon the taking of tension of the globe by finger palpation.

If you have this training and a patient under

* Read before the Forty-third Annual Meeting of the Medical Society, State of California, Oakland, April, 1913.

your care complains of marked discomfort from light, tearing, pain in eye or brow, tenderness of globe, blurring of sight, or there be redness of the eye, note at once the location and character of the injection and the presence of secretion or not aside from tears. Carefully inspect the size, shape and activity of the pupil, also the color of the iris, then estimate the tension of the eye, taking his normal eye as a standard or your own if necessary.

The symptoms to be noted in iritis are ciliary injection, i. e., a purplish circumcorneal zone, a somewhat contracted, irregular and inactive pupil, discolored iris, tenderness over the ciliary region and practically normal tension; there will be hazy vision and pain complained of, especially at night; the patient is usually between the ages of 20 and 40 years. Promptly use atropine strong enough and often enough to produce and hold a wide, round pupil.

In glaucoma you have the ciliary injection, blurred vision, neuralgic pain, but you will have a dilated pupil and increased tension of the globe, with a patient over 40 years of age. Avoid atropine as here it is fatal to the eye.

In conjunctivitis you will get a redness more superficial and diffused than the ciliary injection, and it is not distinctly circumcorneal. There will be more or less secretion in the conjunctival sac or found on the lashes. The pupils are equal in size and activity. The pain is not severe—excepting in gonorrheal infection. One must not forget, however, that there is frequently a combined picture of conjunctivitis and iritis. In this case it is safe to act on the diagnosis of iritis, provided a glaucomatous condition has been eliminated. Exclude glaucoma by carefully noting the tension, next instill homatropine, an irregular pupillary effect will then be characteristic of iritis.

I have found rather a confusion of ideas in the minds of general physicians as to whether homatropine or atropine should be used—for diagnostic purposes use homatropine, for treatment atropine as a general thing is correct.

Particularly do not permit the absence of one or more of the classical symptoms enumerated in each ocular disease to disturb your diagnosis based on other unmistakable diagnostic signs.

The facts I particularly wish to call attention to are: the free and intimate connection of the vascular iris with the entire body through the circulation; the few and positive diagnostic signs for differentiating iritis, during disease or in emergencies open to all medical men by means of their unaided faculties; to the inestimable good that may come from the prompt use of a drop of atropine at the right time in iritis; to the tragedy of using that same drop of atropine in beginning glaucoma; to the not uncommon farce of a doctor prescribing that oft-abused drug, boric acid, for incipient iritis; and the value to the community of a conscientiously trained medical man in the fundamentals of ophthalmology.

AURICULAR FIBRILLATION.*

By H. W. ALLEN, M. D., San Francisco.

Of the numerous advances in our knowledge of cardiac pathology that have come as a result of the study of the heart by graphic methods, there is probably none of more importance to the physician than the recognition of auricular fibrillation as a clinical entity. Known among physiologists for some years as an experimental phenomenon it is only within the past three years that its occurrence among human beings has been definitely proven and as a result of this demonstration we now recognize it as the commonest form of persistent irregularity of the heart.

Very soon after the introduction of the sphygmograph into clinical medicine a type of pulse curve characterized by gross irregularity became the object of especial study. It received various names as *pulsus irregularis*; *inequalis*; *deficiens*; it was also termed the mitral pulse owing to its frequent occurrence in the late stages of mitral disease. Among other causes it was attributed to delirium of the heart. Somewhat later with the introduction of the polygraphic method of investigating cardiac disease this group of absolutely irregular hearts became the object of study by numerous workers and many new facts and much speculation were advanced concerning it. Mackenzie in particular devoted much time to the subject and contributed much to our present knowledge of the venous curves in this condition. He demonstrated the association of gross irregularity of the heart with systolic pulsation of the veins of the neck and gave to the latter condition its present name of the "ventricular form of venous pulse." Inasmuch as no sign of auricular activity could be detected in the venous curves, Mackenzie assumed that the auricle in these absolutely irregular hearts was paralyzed, a view that was agreed in by other observers. Later he was forced to alter his views because he found instances in which the irregularity of the heart ceased and normal action was restored. As this finding was inconsistent with the assumption of auricular paralysis he adopted the view of the nodal origin of the rhythm. This hypothesis explained very satisfactorily the absence of signs of auricular contraction in the venous curves inasmuch as Mackenzie assumed that auricle and ventricle contracted together in response to a common impulse generated in the auriculo-ventricular node of Tawara. It did not, however, satisfactorily explain the gross irregularity of the ventricle, nor did any of the other hypotheses that were advanced, such as great auricular asthenia or the occurrence of multiple extra systoles originating in the neighborhood of the sinus. In fact though this absolutely or per-

* Read before the San Francisco County Medical Society, January 14, 1913.

petually irregular heart was carefully studied by many observers, it practically defied analysis until the advent of the electrocardiograph.

Certain writers, however, were on the right track. In 1907 Cushny and Edmunds reported a case of paroxysmal irregularity of the heart and drew attention to the similarity between the radial tracings from their patient and arterial curves from instances of auricular fibrillation seen experimentally in dogs. They suggested that a similar explanation might suffice for both. However, the first real demonstration of the unity of the absolutely irregular heart and auricular fibrillation came in June 1909, when Rothberger and Winterberg published a paper giving electrocardiographic curves from experimentally produced fibrillation in dogs and from patients with absolutely irregular hearts. They pointed out the exact correspondence of the two pictures but as they had had an opportunity of studying only two patients they contented themselves with suggesting that auricular fibrillation would be found to be the explanation of "some" cases of grossly irregular heart.

Later in the same year Thomas Lewis published an extensive article based on numerous animal experiments and electrocardiographic study of thirty human beings and proved very conclusively that auricular fibrillation is the fundamental condition in absolute irregularity of the heart. He has since amplified this proof and his findings have been fully confirmed by others, so that we may accept it to-day as fully demonstrated that the absolutely irregular heart associated with the ventricular form of venous pulse is due to the occurrence of auricular fibrillation. We have also come to regard this condition as a definite clinical entity and when present its name should replace or take precedence over the older designations of valvular disease and of myocarditis.

The proof that auricular fibrillation occurs in man and is the cause of the absolutely irregular heart is based on a careful comparison of the graphic records, polygraphic and electrocardiographic, obtained from patients suffering from this irregularity with similar records obtained from dogs or other animals in whom auricular fibrillation has been experimentally produced. The records are in complete accord.

The arterial curves in man are characterized, as has been stated, by gross irregularity. This picture is best seen when the pulse rate is rapid though it holds good at practically all times. There is an indiscriminate mixture of beats of all kinds; strong and weak beats and long and short pauses. There is no correspondence between the length of pause and the strength of the succeeding beat; a strong beat may follow a short pause or vice versa. As the pulse slows there is a greater tendency to regularity but except when complete dissociation of auricle and ventricle is present there is probably never absolute regularity.

The venous curves are characterized by the occurrence of the ventricular form of venous pulse, that is, the type in which all the prominent peaks

fall consistently within the limits of ventricular systole. There is a complete absence of all evidence of normal auricular contraction. Occasionally during a long diastole of the ventricle when the vein is slowly filling there occur fine oscillations on the venous curve which can be referred to an incoordinate action of the auricle.

The electrocardiographic records are quite characteristic. A curve representing a normal cardiac cycle presents three main peaks or oscillations; first a small peak called P which is due to the contraction of the auricle; second, a tall peak called R which represents the beginning of systole; and third, a broader, more rounded peak called T corresponding to the end of systole. Other oscillations called Q and S are of minor importance and need not concern us. Between these phases the string of the galvanometer is at rest. The picture from patients with absolutely irregular hearts is quite different. There is no evidence of the normal P variation; no evidence of any coordinate auricular contraction. Instead we find numerous fine oscillations occurring throughout the cardiac cycle; the string of the galvanometer is never at rest. The ventricular peak R is present at irregular intervals throughout the curve; it is unmodified in appearance because the ventricular contraction wave has pursued its normal course and because R represents a very quick deviation of the string. The peak T, however, is variously modified, depending upon how these new oscillations have been superimposed upon it. The rate of these oscillations is variable: from 300 to 500 per minute. They are distinctive for they occur in no other cardiac condition so far known. It has been clearly shown that they are not due to any extraneous influences. By means of special leads from the chest wall Lewis has shown that they are maximal in the region of the right auricle and that when leads are chosen to show chiefly ventricular action they practically disappear from the picture.

Auricular fibrillation is easily produced experimentally in dogs by applying a faradic current to the auricle. Graphic records obtained during such an experiment are alike in all respects to those from patients with absolutely irregular hearts. The arterial curves exhibit the same gross irregularity; the venous curves show no sign of the normal auricular wave and finally the electrocardiographic records are exact duplicates. The conclusion is justified, then, that auricular fibrillation occurs in man and is the cause of the condition that we have hitherto known as absolute irregularity of the heart. It explains fully the otherwise puzzling features of the arterial and venous curves, the gross irregularity and the absence of the wave due to auricular contraction. For when fibrillation sets in there is a complete cessation of coordinate contraction; if viewed directly the auricle is seen to be in a position of diastole and at first glance it may appear to be absolutely at rest. If carefully inspected, however, its surface is seen to be the seat of great activity; constant undulations are everywhere present. The appearance is somewhat

similar to the very fine tremor sometimes observed in a protruded tongue or the fibrillary movements seen in skeletal muscles in some nervous disorders, only the activity is very much greater. In place of giving rise to a single rhythmical impulse which is conveyed to the ventricle, the auricle gives rise to exceedingly numerous irregularly spaced impulses which are conveyed along the auriculo-ventricular bundle without any semblance of rhythmicity and to which the ventricle responds as best it may. Hence the rise in rate and the gross irregularity of the pulse. So far as I know the human auricle has not actually been seen in fibrillation but the opportunity will undoubtedly occur sooner or later in the course of surgical work on the chest.

Regarding the pathological changes that must be responsible for the production of fibrillation, there is as yet no uniformity in reports. Inasmuch as the normal contraction of the heart is started in the sino-auricular node we might expect to find this structure extensively diseased and such in fact has been the case in some instances. Draper has recently reported a careful microscopical study of a heart that had shown fibrillation. He found a high degree of fibrosis in the sino-auricular node and extensive pericardial changes in its immediate neighborhood. In addition the walls of both auricle and ventricle showed varying grades of fibrosis. Other observers have reported somewhat similar findings though the node has not necessarily been extensively damaged. Most are agreed that the fibrotic and inflammatory changes in the walls of the right auricle constitute the essential pathological factor. Naturally extensive damage may be found in other parts of the heart in the way of valvular and myocardial disease and not infrequently the auriculo-ventricular bundle of His shows involvement, which fact can be utilized to explain the slow pulse that occurs in some cases of fibrillation.

Some of the clinical features of auricular fibrillation deserve mention. It is the most frequent irregularity of the heart with which we meet. Lewis has carefully analyzed a considerable group of persistent irregularities and the figures show that fibrillation makes up approximately 50% of the whole number. Of etiological factors the rheumatic infections head the list. It is convenient to divide fibrillation cases into two groups, the first, which may be called the endocarditic, embracing all those with rheumatic history or whose cardiac condition can be referred to a previous endocarditis, and the second, which may be called the sclerotic group, making up the remainder. When so divided it is found that about 70% fall in the first class. This grouping is of some help in estimating the probable response to treatment.

Of the symptomatology of the condition it is unnecessary to say much. Symptoms when present are mostly those of muscular insufficiency and do not require special mention. The effect of fibrillation on the murmur of mitral stenosis should be noted. The typical presystolic rumble disappears

inasmuch as the auricle is no longer contracting and its place is taken by a murmur, usually of a rumbling quality, which occurs earlier in diastole. When the heart rate is rapid this murmur may occupy the whole of diastole, but when the rate is slow one can easily make out during the longer pauses that it occupies a mid-diastolic position and ceases entirely before the beginning of the first sound. That this is actually the case has been proven by graphically recording simultaneously the heart sounds and murmurs and the contraction wave by means of two string galvanometers.

Fibrillation when once established is usually a permanent condition. Patients showing this condition have been followed over periods of five and ten years and have always given evidence of its presence. It need not of necessity interfere with the heart's ability to withstand hard work. Patients are encountered with fibrillation who are able to perform hard labor without unusual discomfort. As in other cardiac disorders the ability of the heart to respond to demands upon it depends largely on the integrity of the ventricular muscle.

There is a not inconsiderable group of patients who exhibit an aporoxysmal form of fibrillation, the attacks lasting for various periods from a few minutes to a number of days. In the intervals between attacks the pulse is regular and graphic records show that the auricle is contracting coordinately. During the course of severe acute infections fibrillation may be met with as a temporary phenomenon.

From what has been said of the importance of graphic records in this condition it might be inferred that they are essential for its recognition but such is not necessarily the case. Typical instances associated with decomposition are usually easily recognized; the combination of rapid rate with marked irregularity is almost distinctive. With pulse rates under 100 per minute confusion may occur with other forms of irregularity such as multiple extra systoles. If one increases the pulse rate by exercise the latter irregularities tend to disappear while those due to fibrillation are exaggerated. The final decision in doubtful cases must rest with the electrocardiogram.

Prognosis depends largely on two factors: our ability to maintain the heart beat at a moderate rate and the quality of the ventricular muscle. Fibrillation is itself an expression of disordered muscle but the damage may be quite unevenly distributed and the ventricular muscle relatively spared. The members of the endocarditic group of cases generally respond to treatment better than do those of the sclerotic group. The possibility of sudden death from fibrillation of the ventricles should be borne in mind.

In speaking of treatment I shall omit all mention of agents other than drugs and of these the only ones requiring discussion are digitalis and strophanthus. Where these fail others will not succeed. The results of treatment in auricular fibrillation are in general most satisfactory and it is from just these cases that digitalis has ac-

quired its great reputation as a cardiac drug. The chief effect of digitalis is seen in a reduction of the ventricular rate. This is brought about by the production of a partial block in the auriculo-ventricular bundle so that many of the auricular impulses fail to get through to the ventricle and the chamber is enabled therefore to perform more effective work. Digitalis produces this block probably in two ways: through its influence on the vagus and by direct action on the auriculo-ventricular bundle. The degree of reduction that can be brought about is sometimes remarkable; in fact complete dissociation of auricle and ventricle has been produced. In some cases only sufficient medication is necessary to reduce the pulse to normal limits, the heart then maintaining itself at the desired rate; in others varying doses of digitalis are required to keep the heart within bounds after the initial reduction; in still others, chiefly members of the sclerotic group, practically no lowering of the rate can be accomplished despite large doses. The outlook in these latter is naturally bad.

Our chief aim, then, in medication is to reduce the ventricular rate to normal limits and to maintain it at this level and we give sufficient digitalis to accomplish this purpose. No exact rules for dosage are therefore possible. If signs of digitalis intoxication appear, chiefly nausea and vomiting, we must, of course, stop its administration. Of the other possible effects of digitalis, the tonic action on the ventricular muscle, the diuresis, etc., it is not my purpose to speak; their influence is secondary to that of the reduction of rate.

Strophanthus in the form of strophanthin, given intravenously, has a definite place in the treatment of fibrillation. In patients seen for the first time with decompensation, rapid ventricular rate and great distress, much may be accomplished by a few timely doses of this drug. Its action is entirely similar to that of digitalis but results are accomplished much more quickly. In 8 or 10 hours one may attain a result that would require two or three days of digitalis by mouth to accomplish. The usual intravenous dose recommended, one milligram, is too large and may be the cause of sudden death. It is better to follow the plan advised of giving a small dose, such as $\frac{1}{4}$ milligram, and repeating in two or three hours for three or four doses. Agassiz has reported a series of cases treated by this method with very excellent results. The effects of a few doses given in this way are sometimes manifested for a number of days; subsequently digitalis by mouth may be resorted to as required.

In the treatment of paroxysmal fibrillation it is recommended that digitalis medication be not resorted to unless conditions are rather urgent. It is thought that this drug tends to prolong the paroxysm and in some instances to make it permanent.

THE FUTILITY OF CARDIAC STIMULANTS IN SHOCK.*

By SAXTON TEMPLE POPE, M. D., San Francisco.

With modern surgical methods and with trained anesthetists, we see less of surgical shock than formerly. But it seems to me that these highly trained anesthetists—because of their skill in avoiding dangerous phases of anesthesia, and consequently seldom coming in contact with shock—are particularly weak in their treatment of this condition. When any untoward condition arises during the course of surgical narcosis, and especially where there are cardiovascular phenomena connected with it, it is almost an invariable custom of anesthetists to resort to hypodermic injections of one or more of the various so-called cardiac stimulants.

Many of these drugs are not stimulants at all, but may best be classified as cardiovascular irritants. Some really inhibit the normal cardiac stimulation—such as digitalis, the action of which is mainly one of interrupting the conduction of stimuli from the sino-auricular node to the ventricle. The majority of these drugs are cardiac accelerators, and some have absolutely no legitimate excuse for being used at all.

The demonstrations of Crile, years ago, almost completely destroyed the popular confidence in the use of strychnine and nitroglycerine in shock. But, turning from one false support in their hour of trial, surgeons have placed their faith in equally futile or harmful drugs: camphor and caffeine.

In the first place, all hypodermic medication is too slow in its action to meet the emergency of shock. It is an absolute waste of time to turn to the anesthetic table and to administer a hypodermic injection, when we know that under the most favorable circulatory conditions, a physiologic action of the drug cannot be expected within ten minutes. In the second place, we are putting dependence upon a measure which has no possible bearing on the disturbed function before us.

Shock, from a mechanical conception, is characterized by a rapid fall in vasomotor tension, and from a certain standpoint this is the one criterion of shock and is the one great danger. The result of this fall in blood pressure has an immediate and disastrous effect upon the cerebral ganglia—and if the pressure remain too long reduced, irreparable damage takes place in these tissues. Moreover, a pressure below 30 millimeters of mercury in the coronary arteries precludes the possibility of cardiac action. That shock is entirely a question of vasomotor fatigue is not contended. The studies of Henderson are conclusive that there may be a condition of carbon dioxide exhaustion—apnea, oxygen starvation, and colloid change—which also may arise as a crisis incident to anesthesia or trauma. These may be designated as the chemic phenomena of shock, or acapnea. Between the theories of vasomotor exhaustion and acapnea the majority of all the cases of surgical shock fall.

If in the course of an operation those phenomena

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occur which indicate the first of these conditions is impending or present, what shall we do?

In the routine instruction of students in surgical physiology and pathology in the Research Laboratory of the Medical Department of the University of California, these problems are worked out regularly. In our studies we use dogs under complete ether anesthesia, connected with a kymograph by means of a femoral cannula. They are reduced to a state of shock either by bleeding, mesenteric traction, or some similar trauma. In this condition the following drugs are used: nitroglycerine, strychnine, strophanthin, digitalin, caffeine, camphorated oil or camphorated milk or spirits of camphor, alcohol, epinephrin, salt solution, Ringer's solution, Hogan's colloid solution, sodium bicarbonate solutions, and transfused blood.

As a result of Crile's work, it may be stated as axiomatic, that the agent that does not raise the blood pressure does not help the subject in shock.

Strychnine has been shown to be of no service, because it has no appreciable pressor action, except when administered in sufficient dose to produce convulsions. It simply acts as a cardiac accelerator, exciting the accelerator ganglia, and adding to the over action and subsequent fatigue of the myocardium.

Nitroglycerine in physiologic doses, as you all know to your advantage in the treatment of hemorrhage, causes a fall in blood pressure. The increased cardiac rate and amplitude of pulse wave which occur are secondary phenomena, dependent on vasodilatation.

Strophanthin and digitalis, by their propensity for eliminating extra systoles and blocking auricular-ventricular conduction, have a good conservative effect upon the heart muscle, but they do not raise blood pressure enough to be of any assistance to the asphyxiated medullary centers. Strophanthin, however, bears the best record for material support to the myocardium of any of the drugs used in our experimental work, and is of service after the crisis is passed.

Caffein, as you will see by the charts, has no vaso-pressor effect, in fact we always get a decided drop in blood pressure when this drug is given intravenously. This possibly is due to it being a hypertonic solution. Any irritant or solution other than that of an isotonic nature may cause slight variations in blood pressure.

Caffein has its effect upon the accelerators of the heart and favors the conduction of impulses through the bundle of His. For this reason coffee drinkers may have excitable and palpitating hearts. Its action is quite opposite to that of digitalis. Given to patients with an idea of helping them over a condition of shock, it only adds to their cardiac strain, makes them nervous and miserable afterwards, and given in excessive doses seems quite as pernicious as acute thyroid intoxication. Dogs in shock, treated by caffeine, die more quickly than those untreated. Caffein was used experimentally on some of the junior medical students. As you may see from the records, there occurred no change of pulse rate, respiration, or blood pressure. In

fact, during the test, talking about athletics to one student caused a greater rise in blood pressure than did the caffeine.

Camphorated oil seems to hold a mystic charm for some minds, and there is much conflicting literature on the subject of its use as a cardiac stimulant. In our work, the hypodermic and introperitoneal injections of from 1 to 5 cc. camphorated oil in dogs, has no appreciable effect upon them during twenty minutes of observation. Oil as a vehicle for camphor is not safe for intravenous injection. Therefore, we have employed camphorated milk, which carries 10% camphor, may be sterilized and is miscible with blood. Intravenous injections of from 1 to 5 cc. of this practically always is followed by a fall in blood pressure of from 10 to 15 millimeters of mercury. Spirits of camphor has practically the same effect. In large doses camphor causes convulsions and death of the animal. Two cubic centimeters camphorated oil administered to a student, under one hour's observation, produced no change of pulse rate—quality or force—and no change in respiration or blood pressure. Camphorated oil 1 cc. given every hour for 24 hours to a moribund patient, dying of cancer of the stomach, made no appreciable change in his temperature, pulse or respiration. He received about an ounce of camphorated oil. Ten or fifteen grains of camphor may be eaten with impunity, except for its slightly irritating quality, and produces no effect upon circulation. One-half ounce of spirits of camphor injected into the stomach of a dog in shock has no effect whatever. I hoped it might even give a gastric reflex, but it did not. From this evidence it is clear to my mind that camphor has a slight vaso-dilator effect, similar to that of nitroglycerine or alcohol. It has possibly a compensatory accelerator action to supply in quantity what it lacks in pressure of blood in the medullary centers. But in shock it is absolutely useless and inert; to give it then is to harbor a dangerous illusion.

The employment of epinephrin in salt solution is, of course, a well established principle, and in spite of the aftermath of myocardial weakness—and its transient action—it is a wonderful assistance in the critical moment.

The addition of a colloid substance to salt solution, such as Dr. Hogan has done, is undoubtedly of great advantage over plain salt solution. With this solution the pressure may be sustained permanently.

A rapidly done blood transfusion is by all means the most valuable method of overcoming shock and should be used more frequently than it is.

In acapnia, the essential thing is oxygen. While primarily the patient stops breathing because he has exhausted his CO_2 , he dies because he has stopped breathing and the brain cells have no oxygen.

Obstructed respiration is in its outcome similar to acapnia though the initial chemic states are diametrically opposite.

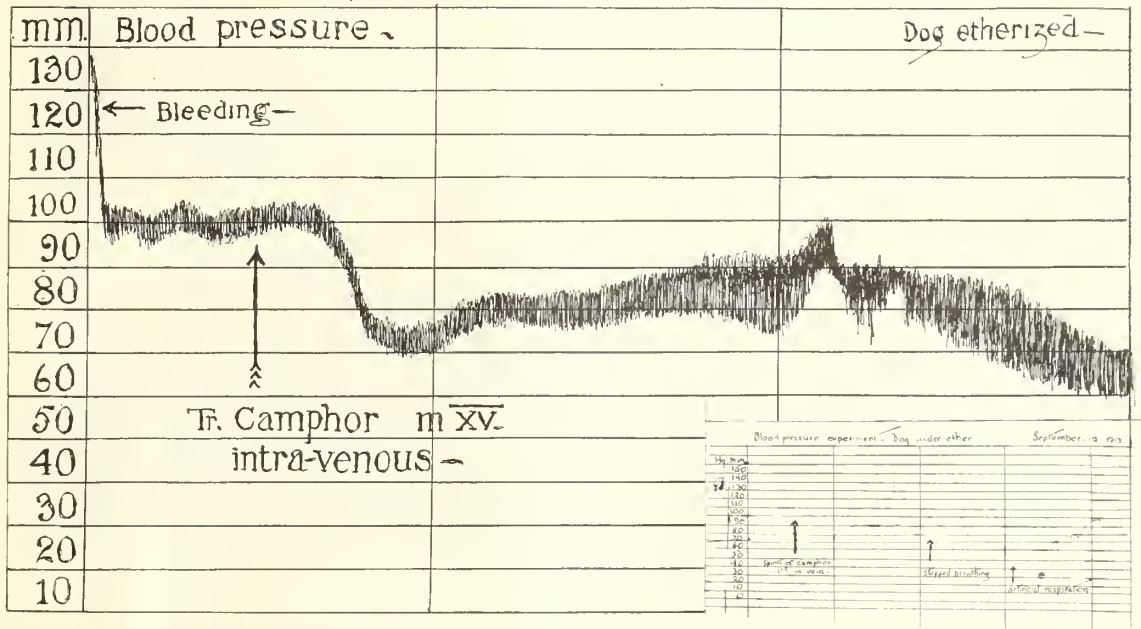
It therefore is evident that what is most essen-

Note:—Hogan's Colloid Solution:

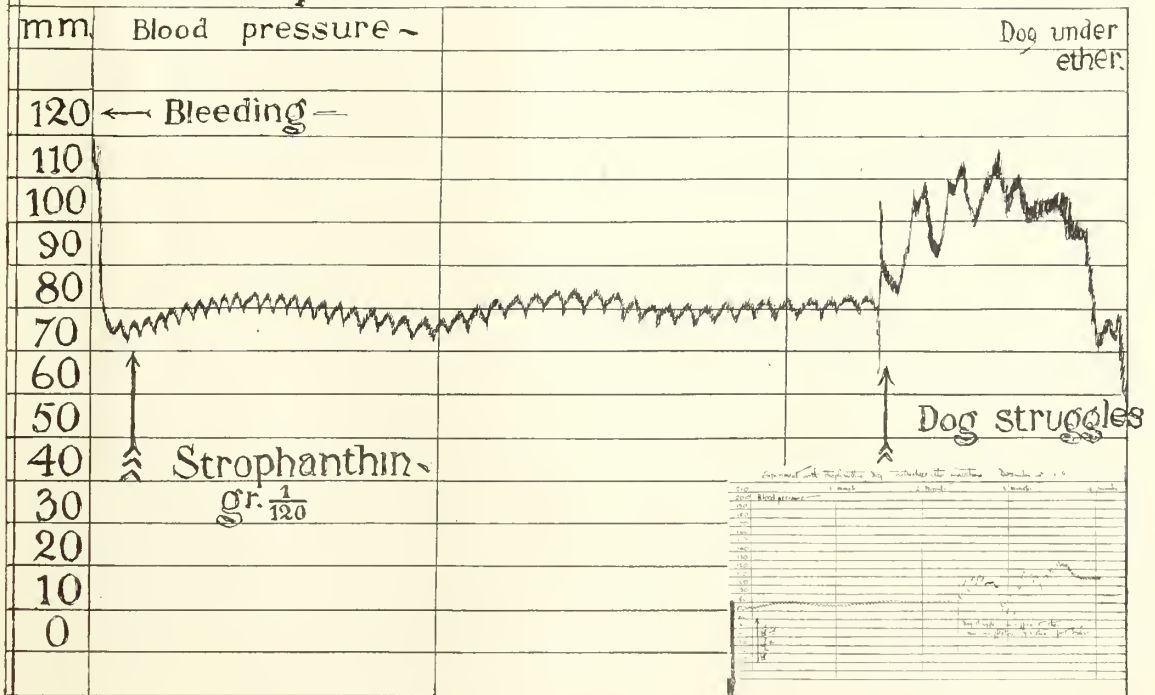
Gelatine 25 grammes
Sodium chloride..... 1.5 grammes
Distilled water..... 100 grammes
Boil, filter, put in autoclave 124° C for 1 hour. Cool.

keep on ice. When ready to use mix this with 900 cc. sterile normal salt solution, to which has been added 2 grammes sodium carbonate.
Use Stoes's gelatine.

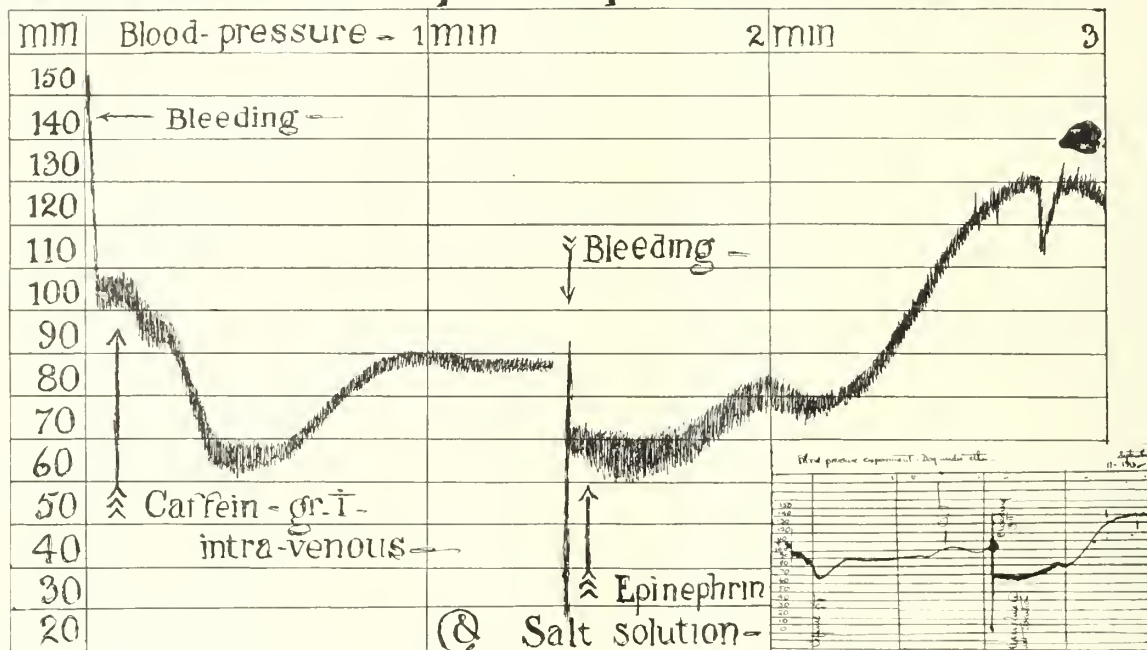
Camphor in Shock~



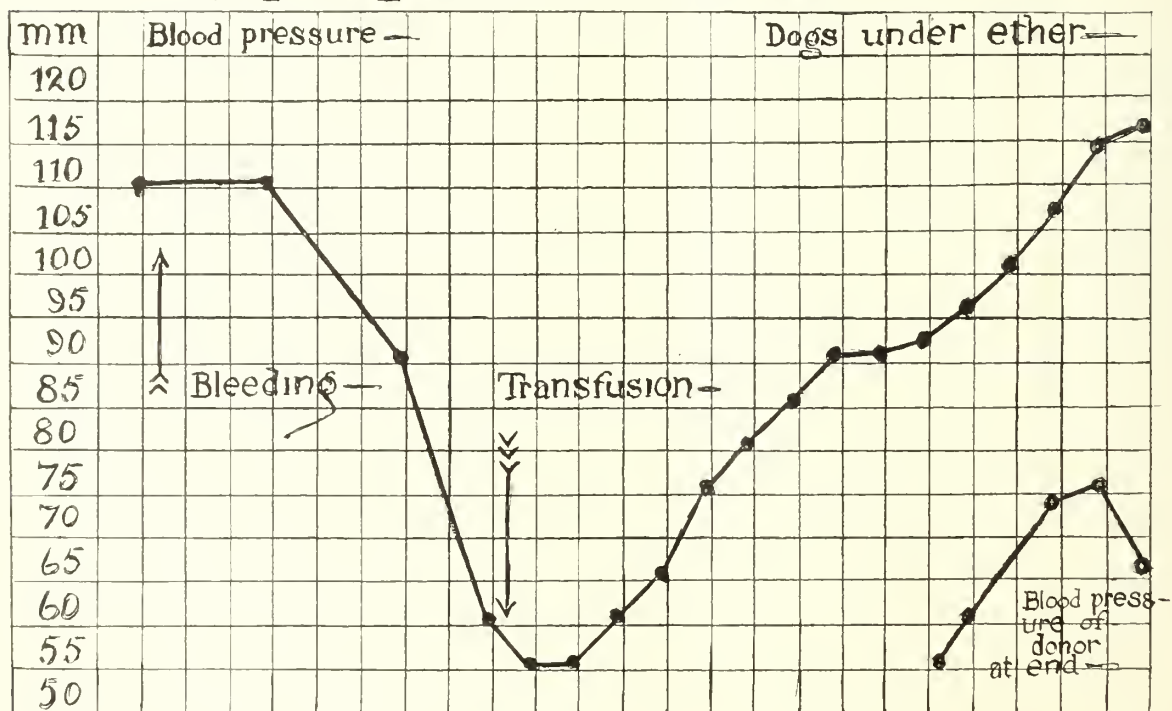
Strophanthin in Shock~

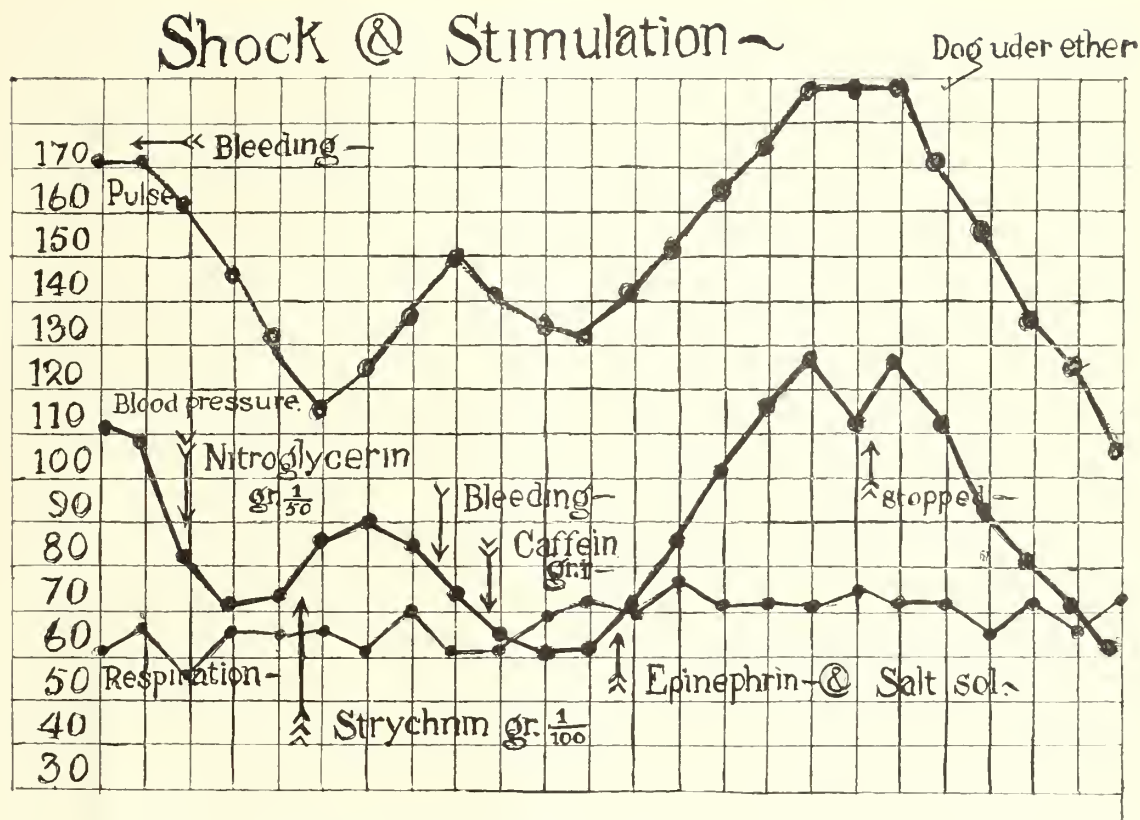


Caffein & Epinephrin-Shock-



A Transfusion ~





tial is an immediate and accurate differential diagnosis.

Vasomotor collapse is characterized by cold sweat, dilated irresponsive pupils, cyanosis, imperceptible or rapid pulse, and gasping or abolished respiration. Here the most rapid and helpful agent is intravenous epinephrin in salt or Ringer's solution. This must be given within a few minutes. The use of oxygen, either by a pulmotor, intratracheal tube, or a mask—with artificial respiration, is imperative. The head should be lowered—and if possible, pressure exerted on the abdomen.

In our work in intrathoracic surgery, where shock and falling blood pressure occur, nothing acts so promptly and surely to raise blood pressure as the intratracheal insufflation of oxygen.

In acapnia, the patient who has been breathing deeply or gasping, suddenly stops. At first his pupils are not dilated, his color is good. Then he turns a dusky gray, the pupils dilate, the pulse fails and blood pressure falls. This is a condition of carbon dioxide exhaustion, and subsequent oxygen starvation. The patient will die of cerebral anemia. What he needs is oxygen mixed with carbon dioxide, artificial respiration, and tongue traction. Don't waste time on anything else! His respiration stopped because his carbon dioxide had been pumped out of him by excessive breathing and consequently there is no normal stimulant left in his blood to keep his respiratory center acting. Keep him alive with oxygen until CO_2 accumulates in the blood and the respiratory center will start automatically again.

Shock from respiratory obstruction is a different picture. Here you have the noisy rattle of exces-

sive mucus, or the stertor of an obstructing tongue or occluded nasal passage. Excessive respiratory action is accompanied by increasing cyanosis. The face becomes livid, the pupils dilate and the heart may fail rapidly. Here, of course, you need to clear the respiratory tract, lift the jaw, insert rubber tubing in the nose, or draw out the tongue. Again, an oxygen pulmotor would be the ideal treatment.

In the fourth and rarest form of shock, there is a sudden heart block—or asystole—due either to acute dilatation from a Trendelenburg position, toxins or fatigue or sepsis, coronary clots, or direct trauma to some area of cardiac reflex. Here venesection from a jugular vein, cardiac massage, and epinephrin in Ringer's solution forced backward in the arterial stream, give the only possible chance for recovery.

Seelig-Tierney and Roderbaugh have recently shown the beneficial action of normal sodium bicarbonate solutions given intravenously in shock. There is an immediate rise in blood pressure, with an active stimulation of the respiratory center resulting from its use. This would, of course, be of service only in the first two types of shock.

Ringer's solution prior to an operation where cardiac strain is anticipated is of decided help in the prevention of myocardial fatigue.

It is obvious, therefore, that at these crises, action must be sure and prompt. All dilatory, inept methods hasten the moment of death. And in not one of these phases of shock is there any help to be had from cardiac stimulants. The heart has suffered already from an excessive accelerator action. The myocardium is fatigued and toxic.

Its failure is secondary to a predominance of other exhausting factors. What is needed is relief from these. The patient will die because his medullary centers do not get oxygen. Hypodermic stimulation is a waste of time, obscures the issue, and invites death.

Discussion.

Dr. Stanley Stillman: This is a very interesting demonstration of the effect on the blood pressure in dogs, and I believe it will hold true in most other animals, I do not think, however, that the shock you get by bleeding a dog is at all comparable with postoperative shock in human beings. I do not think you can quite believe that the conditions are analogous. Certainly I have not used strychnine for a good many years. Caffein hypodermically is frequently given, still it is not worth anything as far as I know. Camphor, however, I think has proved useful. I have held my fingers on the pulse of a patient who is in shock when camphor is given, and I have felt the rise in much less than 10 minutes—in a minute and a half; but I cannot say I have ever saved a patient in shock with camphor. On the other hand, while I have had many cases of severe shock I have lost very few from it. Even with the patient under an anesthetic you can, of course, produce profound impressions on the nervous system by rough treatment and the patient will suffer from shock. In certain cases this figures very much, for instance, in resection of the upper jaw where little anesthetic is used. We used to give a little anesthetic as a bluff in these cases and they suffered very profoundly from the shock of the actual operation itself. John F. Morse taught me to do that and thereby avoid preliminary tracheotomy, and I have done many severe operations on patients using an anesthetic for a few minutes only at the beginning. These patients suffered both from loss of blood and from shock, without any symptoms due to the anesthetic and with rare exceptions they recovered. As to strophanthine, I have never tried it in shock. As to transfusion, if you have a woman who is nearly moribund and conscious, I think the effect of another shock—of transfusion—will be more depressing on her than on a dog, and this should be taken into account in advising it. When shock is not due to direct loss of blood, I do not believe transfusion is called for as often as we should infer from what Dr. Pope has said. I should hesitate to do it. People are not generally entirely unconscious of what is going on. If they are not conscious I do not think that this objection to direct transfusion holds, but as they often are in protracted shock, I dislike to add another operation to what they have gone through.

I had a case rather recently in which the patient recovered from the anesthetic—she had not lost much blood, had no particular nervous shock, and the anesthetic was given by a competent anesthetist; yet half an hour after the anesthetic was stopped she ceased breathing and required artificial respiration off and on for four hours before she breathed properly and again became conscious. One hour previous to operation she had $\frac{1}{4}$ gr. morphine and atropine. Just what happened to her I do not know. It was delayed shock, not due to the anesthetic, not due to blood loss nor trauma. Soda I have never tried.

Dr. L. Eloesser: Dr. Stillman said a good deal of what I wanted to say. I do not know how long after the shock was produced Dr. Pope gave his drugs, nor how long he followed up their effects. Of course, the objection can always be made to these laboratory experiments that the effect of drugs on a previously healthy animal is different to that on a sick human being. I do not know very much about cases of acute shock. Unless a person is an unusually calm observer, he is so much disturbed by the urgency of the patient's

condition that it is difficult to judge of the effects of remedial measures. In the case of protracted shock, where there has been low blood pressure for 24 hours after operation, I have seen patients saved by camphor and the pulse go up and remain up as long as it was being given. I think that the lives of patients have been saved by camphor in acute cases, although I do not imagine for a moment that its speed of absorption is such as to make it of value in cases of protracted shock.

I wonder if Dr. Pope tried pituitrin. It seems to have a more lasting effect than adrenalin.

Dr. Sterling Bunnell: My personal observations have been much in accord with what Dr. Pope's experiments have shown. Drugs, aside from adrenalin, do not count for much in the treatment of shock. The essential is to raise the blood pressure by diminishing the caliber of the peripheral vessels either by adrenalin or by bandaging the limbs, and by filling out the vessels with salt solution or with something more permanent, as colloid salt solution or blood, together with the head down posture, the support of body heat and rest. I think the efforts should be directed more to the prevention of shock than to the treatment of it: I mean by the selection of such an anesthetic as nitrous oxide and oxygen, by blocking the nerves as in anoci, and by learning to operate so as not to produce shock, i. e., not to irritate the peripheral nerves mechanically, chemically or thermally.

I think speed of operation is also very important. A man should operate as fast as he can without haste and with delicate handling of the tissues so as to avoid duration of trauma and other irritations and duration of anesthetic. A preliminary transfusion is of more efficiency than the frantic post-operative efforts exerted while the patient is dying.

Major Brooke: I have had very little experience except with acute shock and collapse. In these cases I depend almost entirely upon artificial respiration. I have recently seen cases which went into acute collapse, and the pulmotor and oxygen have revived them promptly.

Dr. Edith Williams: I think that the idea of Dr. Bunnell in regard to transfusion before operation is correct; I have seen a couple of cases that I am sure would not have stood the operation without transfusion to begin with. The only means of help I have seen are transfusion and raising the blood pressure by putting salt solution and adrenalin in the blood vessels. I do not know of any good that has come from hypodermic medication.

Dr. Pope, closing discussion: The variations in pulse are so great in the same patient that deductions drawn from one patient must be accepted with reservation. That a patient in shock may improve while he is being given camphor, means nothing except that he is better—why he is better may be a less obvious fact. When Dr. Eloesser says the pulse comes up, I presume he means it has a greater thump to it. This means there is a greater amplitude to the pulse wave, which we know does exist where there is a fall in blood pressure. This is a compensatory action—but the pressure remains low.

Camphor is described as a diffusible stimulant—whatever that may mean—so is whisky; both lower blood pressure and produce a rapid bounding pulse—if they do anything; both are vasodilators. I have tried pituitrin only once experimentally, and that once it happened to be inert. Of course the essential thing in shock is to avoid it. We all try to do that. But in spite of our good intentions, crises do occur during anesthesia—and there lies the moral of my story. In the use of salt solution—we all know that you can drown the patient by giving it in excessive quantities. Salt solution should be used only to tide over the crisis, and it

is used only because it is handy. Colloid solution is much better, but best of all is a transfusion.

It is not assumed, however, that every case of low blood pressure necessarily needs artificial restitution. In some instances moderately lowered pressure is either not dangerous, or is beneficial in stopping hemorrhage. The condition of cerebral circulation should dictate whether or not we use restorative measures. Whether a person or a dog is bled into his splanchnic veins or bled into a vessel, the effect is just the same; the condition is shock.

When the pulse of a patient is felt to respond to any hypodermic injection in a minute and a half, we must conclude that the person who holds the pulse has a lively imagination.

Transfusion can hardly be classified as an operation of much gravity, nor one likely to increase shock. The difficulties and inconveniences are trivial. However, whether or not a surgeon resorts to transfusion is largely a matter of temperament. Patients who die suddenly in the early stages of anesthesia usually die from apnea—excessive breathing, in other words. Irregularity of respiration post-operatively, with pronounced fluctuations, in my experience is generally found in patients who have not suffered from shock, but who have post-operative hysteria. This diagnosis, however, would hardly be made in the presence of morphine poisoning.

This whole paper and these charts will not convince any of you by themselves. The only thing that brings conviction is to have our patients die under our unavailing efforts, frantic stimulation, and ill-judged measures. Then we turn to experimental methods and find the cause, the reason and the remedy.

TRAUMATIC RETROPERITONEAL DISPLACEMENT OF THE DUODENUM; ABSOLUTE OBSTRUCTION DEVELOPING GRADUALLY THEREFROM; GASTRO-JEJUNOSTOMY; DUODENAL JEJUNOSTOMY; RECOVERY.*

By LEWIS W. ALLEN, M. D., San Francisco.

There are two points in the history of this case which have led me to report it before the Society. It is not because of the character of the lesion, for it is so unusual that it is not likely to occur a second time.

In the first place I would draw your attention to the symptoms beginning three to four weeks after the accident, and to their very gradual development. They led to an incorrect interpretation of the X-ray plates, and to an ineffectual short-loop gastro-jejunostomy, performed for their relief.

The other point of interest was the observation that the short-loop gastro-jejunostomy was in reality a long-loop one, because of the long arm of the displaced duodenum, producing a vicious-circle vomiting demanding an operation of the Roux type, which was performed under the most trying conditions, but which was followed by complete and immediate relief.

That you may enter into the problem as it presented itself to me, I will give a brief history of the case.

Miss A. E., age 28 years, native of Finland, with very robust constitution and splendid physique, having always enjoyed good health, was caught between a moving elevator and the shaft; was carried

up one floor and then down a floor and a half. The remarkable thing was that she was not immediately crushed to death, but a trap in the roof of the elevator through which her head and shoulders passed, apparently saved her life.

On examining her after the accident I found a very much shocked and nervous patient, conscious, but suffering from the pain of bruises to her right side from the shoulder to the knee, but with no bones broken. She was sent to St. Luke's Hospital for care and observation. Suffice it to say that thorough physical examination revealed no indication of any internal injuries in thorax or abdomen, except superficial tenderness and some spasm of the muscles. No hematuria. Liver, spleen and kidneys were in normal position. Reflexes were normal. The patient complained at this time only of diffuse pains about the region of the right shoulder, right thigh, and at times, in the abdomen. After the first few days the patient complained less of pain, began to move her body, and was very much more comfortable. She was able from the first to take liquid nourishment without distress, but occasionally would complain of nausea, and refuse her food for some one particular meal.

This at the time was not seriously considered, as she had been terribly shocked. It was thought that with rest and returning strength such slight trouble would pass away. However, on the 28th day she began to vomit regularly once a day. It is needless to say that every medicine known to be helpful in relieving vomiting was tried during the succeeding days. The symptoms, however, became gradually more pronounced. She at first would retain and digest one or two of her meals each day, but habitually vomited once, although not always at the same time, each day; nor after taking any particular kind or quantity of food. It was typically erratic in character. Sometimes she would digest a heavy meal and vomit a light one, or vice versa. On the thirty-third day, for the first time, she vomited a large amount of undigested food several hours after eating. Sometimes it would be in the morning, sometimes in the evening, but gradually it became more frequent. Her appetite diminished; she lost weight; was occasionally irrational, and the seriousness of her condition became apparent.

The stomach was washed, test meal given and examined, food withheld entirely without any permanent effect upon the gradual but steady progress of the symptoms pointing to obstruction. An X-ray examination was made when the symptoms began to be constant and severe. It was interpreted as showing decided retention in an apparently low and atonic stomach. Such a condition could easily be explained by the crushing force of the accident and the severity of the shock following. The only fact that did not fit into this theory was that the vomiting did not commence until four weeks after the accident. However, elevation of the foot of the bed, stomatic tonics, and electricity were all tried without avail; so that at last I decided to perform a gastro-jejunostomy for the relief of the symptoms which were now decidedly those of obstruction.

On opening the abdomen what did I find? The stomach was slightly larger than normal, but quite in its normal position. The pyloric sphincter was slightly hypertrophied, but the pyloric opening was patulous. I could find no cause for the vomiting until, in searching for the beginning of the jejunum, I found that instead of disappearing through the mesocolon it seemed to pass down behind the peritoneum toward the pelvis on the left side. Further investigation showed that what passed downward beneath the peritoneum was in reality the duodenum, which at the time of the accident must have been forced, slightly, but sufficiently to loosen the retroperitoneal tissue at the point just back of its place of exit through the mesocolon, and

* Reported before the Surgical Section of the San Francisco County Medical Society, August 17, 1913.

which in the succeeding weeks had been gradually forced further and further along with a constantly increasing knuckle, producing more and more pronounced symptoms of obstruction. With this positive knowledge of actual conditions as seen at operation, a corrected interpretation of the X-ray plate would make the shadow, which was thought to be a low and atonic stomach, in reality a retention in the dilated, herniated third portion of the duodenum. Then for the first time the faint bismuth shadow was observed in the upper portion of the duodenum leading to the mass shadow in the obstructed duodenum.

The duodenum was pulled up and anchored to the under surface of the liver, a short-loop gastro-jejunostomy performed and the abdomen closed.

This ends the first phase of interest in this case; the second is what followed the gastro-jejunostomy.

The patient vomited following the operation. This I hoped, for the first day or two, was due to the anesthetic. As the days passed, however, and the vomiting continued, I knew it was not, but hoped each day that it would stop. Close observation of the character of the vomitus soon led to the conclusion that I was dealing with the so-called "vicious circle." She did not vomit food as before, but bile. Several hours after taking nourishment (this was, of course, four or five days after the operation) she would vomit large quantities of bile with no food whatsoever. I concluded that the third portion of the duodenum, in its low position to which it most likely had returned after the first operation, was acting like the first portion of a jejunum as far as position was concerned, and was thus making a long loop out of my short-loop operation, and that a Roux operation, joining this portion of the duodenum lying below the mesocolon and behind the peritoneum to the efferent portion of the jejunum below the gastro-jejunostomy, was indicated. I shrank from subjecting the patient to such a serious procedure. She was now extremely emaciated from her long continued period of vomiting; part of the time was in delirium, resulting from the loss of nourishment and fluids from her tissues, and had just gone through the shock of one operation. Added to all this, I realized that it would be a very serious undertaking to make a union between the jejunum and the duodenum lying behind the peritoneum. I realized that it would be quite a different undertaking than the ordinary Roux procedure, where one has the afferent loop of the jejunum with its mesentery free. Here there would be no means of bringing the two loops up into the wound for easy union; no way of shutting off the bowel contents to prevent soiling. I realized that, technically, one would be working under a double disadvantage.

I'm sure you will appreciate why I approached this patient's room each day with "fingers double crossed," in the hope that I would find some improvement in her condition that might justify me in postponing any further procedure. Each day, however, brought its disappointment and a weaker patient; so that on the morning of the eighth day, finding my patient still vomiting bile, I decided to wage my theory as to the cause, against her chance of recovery, and sent her to the operating room. As to the operation, it was no easier than I had anticipated. The first stitch that drew the jejunum to the side of the duodenum in the left flank, made every other stitch difficult, because it placed the jejunum between the eye and the field of work. The abdominal aorta, against which the duodenum lay, pulsated most annoyingly. The danger, however, was the risk of infection, as the mucosae had to be united without protective clamps in this deep and trying position. The one relieving feature was, that the previous gastro-jejunostomy had healed without extra adhesions, notwithstanding her constant vomiting. The general cavity was perfectly free as though it had never been opened. With

every precaution to combat shock, we finished the union of duodenum and jejunum, and closed the abdomen. With what result? She did not vomit once after the operation, not even from the anesthetic! The convalescence was slow, but continuous and uneventful.

IMPORTANT!

Please send your change of office address immediately to the California State Journal of Medicine, 930 Butler Building, San Francisco.

BOOK REVIEWS

Principles and Practice of Obstetrics. By Joseph B. De Lee, A. M., M. D., Professor of Obstetrics at the Northwestern University Medical School. Large octavo of 1050 pages, with 913 illustrations, 150 of them in colors. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$8.00 net; half morocco, \$9.50.

This compend on obstetrics is most completely and beautifully illustrated, rivaling the best that has been published by English or foreign authors. This high plane of excellence is likewise sustained in the sensible and interesting way the author has written his book. For the conscientious undergraduate it must prove rather discouraging to realize that he should master the contents of such a book as this before assuming honestly the responsibilities of private obstetrics practice. For the aspirant of obstetrical honors, however, this book will prove an excellent guide for the early years of his needed training.

Malaria. By Graham E. Henson, M. D. Pp. 173. 27 illustrations. St. Louis. C. V. Mosby Co., 1913.

Into a small volume the author has gathered together in a very comprehensive way, not only the essentials of our knowledge of malaria, but he has succeeded in placing a goodly amount of information into his work as well. Quite a number of books on the subject are frequently quoted, especially that of Craig on "Malarial Fevers," whom the author evidently regards with great favor. It is easily apparent that the author has a very familiar and practical understanding of his subject, and his work will appeal particularly to those who are interested in that side of the subject. To the less familiar, the want of a larger number of illustrations and especially clearer ones of the small malarial forms, might be keenly felt. On the whole, however, this little work may well be recommended to the profession.

H. F. ADLER.

Diet in Health and Disease. By Julius Friedenwald, M. D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore; and John Ruhrah, M. D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth edition, thoroughly revised and enlarged. Octavo of 857 pages. Philadelphia and London: W. B. Saunders Company, 1913. Cloth, \$4.00; half morocco, \$5.50 net. W. B. Saunders Company, Philadelphia and London.

Four years having elapsed since the publication of the third edition of this book, the many changes in opinions held by authorities on diet, and the new facts brought forward by metabolism studies have induced the authors to thoroughly revise their well known and popular work.

A chapter has been added on the mechanism of digestion, and that on metabolism rewritten. The subject of diet in relation to salt metabolism has been considerably changed, the work of Widal being given due weight, whereas no mention is made of the theories of Fischer, who has yet to publish convincing clinical evidence of the successful application of his ideas in a large series of cases.

Coleman's work on typhoid fever is included in its appropriate section. The chapter on diabetes has been considerably amplified and its value greatly increased by the inclusion of definite dietetic schemes of treatment as well as of the tables published quite recently by Winton of the Connecticut Agricultural Station on the composition of most of the so-called diabetic foods. These tables should do much to disillusion the average person so apt to forbid bread and other carbohydrates but who prescribes these foods ad lib.

Without going into further detail it may be said that the book gives us the latest views on all dietetic questions and can be heartily recommended as being about the best published in the United States on this important subject. R. B.

Diseases of the Eye. By George E. deSchweinitz, M. D., Professor of Ophthalmology in the University of Pennsylvania. Seventh Edition, Thoroughly Revised. Octavo of 979 pages, 360 text illustrations, and seven lithographic plates. Philadelphia and London. W. B. Saunders Company, 1913. Cloth, \$5.00 net, Half Morocco, \$6.00 net.

The text book on Ophthalmology by de Schweinitz, has met with marked favor as is evi-

denced by its now appearing in its seventh edition. This work can be recommended to those wishing a reliable guide in ophthalmology. The following special paragraphs, which appear for the first time, have brought the book up to date:

Schiotz's Tonometer, 110-504;
Ophthalmodiaphanoscopy, 141-485;
Sporotrichosis of the Eyelids and Conjunctiva, 299-220;
Widmark's Conjunctivitis, 306;
Rosacea Keratitis, 351;
Epithelial Dystrophy of the Cornea, 367;
Marginal Degeneration of the Cornea, 367;
Blue Sclerotics, 396;
Progressive Atrophy of the Iris Layers, 400-406-411;
Exudative Retinitis, 610;
Angiomatosis Retina, 611;
Cysts of the Retina, 624;
Blindness from the Aryolarsenates, 672;
Siegrist's method of local Anesthesia, 802;
Simple Trephining of the Sclera, 522-845-846.
Reese's Muscle Resection Operation, 902;
Toti's Operation, 910.

The paper is good, as is the print, and though the book is more bulky than its predecessor, it contains the same number of pages. It might have been well to have changed more of the stereotyped illustrations. W. S. F.

The Surgical Clinics of John B. Murphy, M. D., at Mercy Hospital, Chicago. Volume II, No. 5 (October, 1913). Octavo of 174 pages, 52 illustrations. W. B. Saunders Company, Philadelphia and London. 1913. Published bi-monthly. Price per year: Paper, \$8.00; cloth, \$12.00. W. B. Saunders Company, Philadelphia and London.

Double Inguinal Hernia—Some Italian Statistics—Technic of the Andrews Operation.

Appendicitis — Differential Diagnosis; Perforations; Treatment of General Suppurative Peritonitis.

Osteitis Fibrosa Cysticus of the Upper End of the Femur, not Involving the Head and Neck; Transplant Placed in Cavity.

Cavernous Angioma of the Thigh.

Sarcoma of the Thymus Gland.

Infected Bursa of Olecranon; Miner's Elbow.

Healed Duodenal Ulcer; Constriction of Pyloric Zone of Stomach by Adhesions; Tubercular Appendicitis.

Ankylosis of Knee with Old Focus of Infection in Tissues Outside of Knee, Discovered at Operation. Early Management of Joint Infections to Prevent Ankylosis.

Congenital Idiopathic Dilatation of the Colon; Parry's Disease; Hirschsprung's Disease.

Ankylosis of Hip Following Sore Throat; Metastatic Arthritis; Arthroplasty.

Calculus in the Urinary Bladder.

Tumor of the Tongue—Tuberculoma.

Carcinoma of the Tongue. Patient Brought in for Examination. Specimen Removed for Laboratory Examination.

Tumor of Femur; Cavity Filled with Moorhof Wax.

Abdominal Fecal Fistula Following Puncture of Uterus by Curet and Drainage of Retro-uterine Abscess. Remarks on Use of Curet. Resection of Bowel. End-to-Side Suture. Anastomosis.

Tumor of Axilla; False Aneurysm of Axillary Artery, Result of Ulcerative Syphilitic Endarteritis, which Perforated the Wall of the Artery.

Talk on Cancer by Dr. W. L. Rodman of Philadelphia (at the Clinic, June 5, 1913).

The Modern Treatment of Nervous and Mental Diseases. By eminent American and British authors. Edited by William A. White, M. D., Superintendent of the Government Hospital for the Insane, Washington, D. C.; Professor of Nervous and Mental Diseases in the Georgetown University and in the George Washington University; Lecturer on Mental Diseases in the U. S. Army and U. S. Navy Medical School, Washington, D. C., and Smith Ely Jelliffe, A. M., M. D., Ph. D., Adjunct Professor of Diseases of the Mind and Nervous System in the Post-Graduate Medical School and Hospital; Visiting Neurologist to the City Hospital; Consulting Neurologist to the Manhattan State Hospital, New York, N. Y. Two octavo volumes, containing about 900 pages each, illustrated. Per volume, cloth, \$6.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1913.

VOLUME II.

This volume is largely devoted to the specific nervous diseases of organic origin.

In his chapter on "Headaches," Jelliffe classifies the different forms into—

1. Extracerebral pains.
2. Intracranial headaches.
3. Those symptomatic of toxæmias or of general disease.
4. The psychogenic and psychotic headaches.
5. Ophthalmic migraine.

The various subdivisions of the above classes are discussed with an excellent guide to the differential diagnosis and treatment of the various forms.

Another important chapter written by Jelliffe is the treatment of the various manifestations of syphilis of the nervous system. This chapter in itself occupies, as it should, a considerable portion of the volume. Jelliffe is "encouraged, on the whole, with the results of treatment of the nervous manifestations of central nervous system syphilis, notwithstanding that the nervous system when modified by syphilis suffers greater functional losses than other bodily structures.

He further states that "since it has come to be believed that both tabes and general paresis rest upon a syphilitic basis, the variety of syphilitic disorders show fairly clear clinical entities has been enlarged.

Jelliffe gives an excellent historical outline of this disease and describes in a few sentences the clinical and laboratory data for making more exact diagnoses. Numerous excellent photographs of patients and pathological specimens grace this important chapter.

A simple system of re-education in the treatment of tabetic ataxias is explained and illustrated.

Concluding the discussion of syphilis is an excellent chapter on the relative values of salvarsan and neosalvarsan. Nichols, the author of the chapter, says that the consensus of opinion is that neosalvarsan acts equally as well as salvarsan and is easier to give. He feels that in time it will entirely replace the older form. This latter statement is not borne out according to numerous authors who have used neosalvarsan largely.

The other chapters in the book are well written, profusely illustrated with a good bibliography succeeding the various chapters.

The work is especially valuable as a reference because it consists not only of the treatment, but what is more important, a good differential diagnosis.

J. M. WOLFSOHN.

Psychoneuroses and Psychotherapy. By Dejerine and Gauckler. Translation by Smith Ely Jelliffe. J. B. Lippincott Company. \$4.00.

When an anatomist, a neuropathologist and a

clinician of the prominence of Dejerine occupies himself with the subject of the psychoneuroses his views and opinions are well worthy of thoughtful consideration. The ideas of this author regarding functional nervous diseases have developed from a clinical experience of thirty years, during fifteen of which he has conducted an isolation and psychotherapeutic ward at the Salpêtrière in Paris. At the beginning of the book Dejerine defines his ideas of psychotherapy, which to this author depends exclusively upon the beneficial influence of one person on another. A psychotherapy based solely on reasoning and argument such as is advocated by Dubois of Berne is not sufficient. The psychoneuroses have a common pathogeny in emotion. This emotion acts on individuals of a peculiar psychological constitution. Neurasthenia is an entity, there being no such etiological classification possible as sexual, digestive, etc., neurasthenia. The condition is due to the non-adaptation of an individual to some emotional cause and the struggle of the individual to this adaptation. Hysteria results from a dissociating action on the mentality produced by a lively emotion. These two neuroses, however, form a distinct pathological entity. In hysteria suggestion plays an infinitely small roll in the genesis of the affection. Hysteria and simulation must not be confounded. The psychasthenia of Janet is not a psychoneurosis but a psychosis. Somatic symptoms in neurasthenia may be objective and resemble organic disease. Such a symptom is dilatation of the stomach due to a general atony in these patients. Drugs have no place in the treatment of the psychoneuroses. In general psychotherapeutic measures may be divided into two classes: Methods of suggestion and methods of persuasion. In the method by suggestion the treatment may be compared to symptomatic treatment in organic disease, while in the method by persuasion the treatment is causative.

The method by persuasion therefore is the logical one and operates with the consent and judgment of the patient. Hypnotism is a form of treatment by suggestion. But hypnotism is a direct attack on the individual personality, is addressed to the psychological automatism and therefore is in line with the deterioration and weakness of the mental control and for these reasons is to be condemned. Persuasion is the method of choice. The patient is shown how the awakening of the pathological idea by memory and psychic fixation takes place and the mechanism of psychic pain. It is necessary to study each case individually as results often depend upon the acuteness, resources and patience of the physician. Isolation is of benefit in selected cases, particularly in the young and the adjuncts of psychotherapy must not be neglected. Finally the prophylaxis of the psychoneuroses must be considered. There are the principles upon which these authors have based their system. Freud's sexual theory is not discussed. Numerous case reports, details of diagnosis and therapy emphasize the author's viewpoints and do much to simplify and clarify. The book is divided into three parts, the first part being analytical or a study of functional manifestations, the second part synthetical or dealing with the mechanism of the formation of the psychoneuroses, and the third part is devoted to psychotherapeutics. In our opinion the book is one of the most valuable contributions which has appeared on the subject. The English translation compares very favorably with the original both in expression and style although the text is followed very closely. We also note with pleasure the absence of the too frequent Editor's comments, opinions and explanations which often produce the impression of a collaboration rather than a translation.

W. F. S.

SOCIETY REPORT**COOPER CLINICAL SOCIETY.**

The first meeting for the year 1913-14 was held at the Medical Department of Stanford University on the evening of September 15th. The following scientific program was given:

1. Late Hereditary Syphilis (?). H. E. Alderson. Discussed by H. Y. McNaught, W. F. Cheney and H. R. Oliver.

2. Pellagra. Case Demonstration. R. W. Harbaugh. Discussed by J. D. Long.

3. Presentation of Case of Infantile Spastic Diplegia. J. M. Wolfsohn. Discussed by W. F. Schaller and H. C. McClenahan.

4. Calibration of Male Urethra. F. M. Gedney.

5. Undetected Lesions of Urethral Canal. Preliminary Report. Howard Somers. Discussed by R. L. Rigdon.

SAN BERNARDINO COUNTY.

The annual dinner of the San Bernardino County Medical Society was held in the Physicians' Club Rooms, Masonic Temple, Redlands, on the evening of October 4 at seven o'clock. About thirty members were present and two lively hours were spent in doing justice to the feast prepared by the girls of the Domestic Science Class of the local high school; and in gently probing the tender spots of the various members of the County Society in some after dinner stunts.

Following the dinner the reports of the officers of the preceding year were read,—that of the Treasurer showing a substantial balance in the treasury, and the Secretary reporting an excellent condition of affairs in the Society, the membership having increased over fifty per cent. in the last two years.

The annual election of officers resulted as follows:

President, Dr. B. F. Church, Redlands; First Vice-President, Dr. H. W. Mills, San Bernardino; Second Vice-President, Dr. L. A. LaMotte, Colton; Secretary, Dr. C. G. Hilliard, Redlands; Treasurer, Dr. W. A. Taltavall, Redlands; Delegate to the State Society, Dr. C. G. Hilliard, Redlands; Alternate, Dr. G. G. Moseley, Redlands.

DR. C. G. HILLIARD, Sec'y.

SAN JOAQUIN COUNTY.

The regular monthly meeting of the San Joaquin County Medical Society was held at the office of Dr. E. A. Arthur, Friday evening, September 26. The following members were present: Drs. E. A. Arthur, L. Dozier, H. E. Sanderson, C. R. Harry, Margaret Smyth, J. D. Dameron, Minerva Goodman, R. B. Knight, J. E. Nelson of Lodi, F. P. Clark, C. F. English and R. T. McGurk, with Mrs. S. P. Tuggle, W. F. Priestly and J. T. Davison as guests.

Upon the report of Dr. Goodman, chairman of the Committee on Admissions, Drs. E. W. Elliott of Turlock and G. G. Hawkins of Ione were elected to membership in the society. The secretary read a communication from Dr. Jones of the State Society which explained the change in the dues to the State Society from \$4 to \$6. Upon the motion of Dr. Harry the local society dues for the coming year were fixed at \$7.

At the conclusion of the routine business, Dr. Arthur was called upon to read a paper, "Some Methods of Hospitals in the East and Abroad."

The doctor gave an interesting talk on the various methods of European and American hospitals and stated that the American hospital compared very favorably with those of Europe, and in fact in many cases excelled, particularly in the surgical line. He spoke very highly of the Mayo hospital at Rochester as an institution where all around surgical information could be had. Dr. Arthur answered a great many questions in a very entertaining manner, which brought out much valuable discussion.

There being no further business, the meeting was adjourned.

R. T. McGURK, Secretary.

SANTA BARBARA COUNTY.

The Santa Barbara County Medical Society met in regular session at the Arlington Hotel, Monday, September 8, 1913, at about 8 p. m. Was called to order by the president. The secretary at his desk. Present—Drs. Barry, Morrey, C. S. and T. A. Stoddard and Wells. The secretary presented the usual business matters. The society then listened to an interesting and instructive description of some medical experiences in the Orient by its president, Dr. T. A. Stoddard, said narrative including visits amongst medical men in Honolulu, Manila and Hongkong; upon the conclusion of which the society adjourned.

The Santa Barbara County Medical Society met in regular session at the Arlington Hotel, Monday, October 13, 1913, at about 8 p. m. In the absence of the president, Dr. T. A. Stoddard, the meeting was called to order by the vice-president, Dr. Samuel P. Low. The secretary at his desk. Present—Drs. Barry, Low, C. S. Stoddard, Wells. Visitors, Drs. Cullen (Surgeon U. S. A., ranking as captain), W. H. Flint, and Miller of Baltimore. Dr. Bakewell who was to have given the paper or discourse of the evening, "Visits to Some Eastern Climes," was unavoidably absent, being professionally detained. So after the presentation of some clinical cases by Drs. Stoddard and Wells, a rare case of osteomalacia, and one of submucous resection (nasal) respectively, Captain Cullen, upon request, gave a most interesting informal talk on "leprosy" relating his experiences with the disease in the Hawaiian and Philippine Islands. The doctor stated that the disease was not nearly so contagious as generally believed, ranking only fourth in order of contagion. He referred briefly to the case of Father Damien, a Roman Catholic missionary, who gave his life up to work amongst the lepers on Molokai, finally after ten years' residence in the leper colony contracting and ultimately dying from the malady. Dr. Cullen said that he considered Dr. W. Coy, U. S. A., of Honolulu, the greatest living authority on leprosy.

The society concluded its session by a free talk and exchange of opinion on the subject of typhoid prophylaxis and the duty of the physician to use and recommend to his clientele typhoid vaccine for prophylactic purposes.

Before adjourning the society took notice of the fact that its president had lately passed safely through the trying ordeal of an appendectomy for which it was very thankful. Adjourned.

WILLIAM T. BARRY, M. D.,
Secretary.

THE ELEVENTH ANNUAL MEETING OF THE PACIFIC ASSOCIATION OF RAILWAY SURGEONS, SAN FRANCISCO, CAL., 1913.

Officers: Dr. David Powell, President, Marysville; Dr. R. T. Legge, 1st Vice-President, McCloud; Dr. S. J. Gardner, 2nd Vice-President, San Francisco; Dr. E. M. Keys, Treasurer, Alameda; Dr. G. R. Carson, Secretary, San Francisco.

The eleventh Annual meeting of the Pacific Association of Railway Surgeons was held October 24th and 25th at the Palace Hotel, San Francisco.

Programme—First Session—2:00 p. m., October 24th: 1. President's Address: David Powell, Marysville; 2. "The Personal and Family History of the Tuberculous Patient as an Aid in Diagnosis," Robert A. Peers, Colfax; 3. "Preliminary Report on the Treatment of Typhoid Fever with Human Serum Taken from Convalescent Typhoids," Geo. R. Carson, San Francisco; 4. "Report of a Case of Thrombophlebitis of Left Femoral Vein Following Operation for Right Direct and Left Incomplete Indirect Inguinal Hernia," C. J. Teass, San Francisco; 5. "Defects of the Arches of the Human Foot" (clinical demonstrations), Ethan H. Smith, San Francisco; 6. "Aneurism Descending Aorta Substernal Thyroid" (report of cases), Philip King Brown, San Francisco.

Second Session—2:00 p. m., October 25th—7. "A Few Notes from the Harriman Research Laboratory, Southern Pacific General Hospital," W. T. Cummins, San Francisco; 8. "The Fracture-Sprain in the Child" (demonstration X-ray plates), Alvin Powell, Oakland; 9. "Fractures of the Neck of the Femur," C. W. Evans, Modesto; 10. "A Case of Compound Comminuted Fracture of Both Thighs," Thos. W. Huntington, San Francisco; 11. "Fractures" (lantern demonstration), W. B. Coffey, San Francisco; 12. "The Early Diagnosis of Fractured Skull, with Special Reference to X-ray Plates," L. P. Howe, San Francisco.

LAY RECOGNITION.

Indeed, the tendency of the doctor to-day is to be a social servant. More than any other professional worker, he is hearing and heeding the call to "come over and help us." Gradually he is realizing and admitting that the medicines he prescribes are secondary measures; that his prime service consists in teaching people how to avoid the need of tinctures and triturates.

Coming into closer contact than any one else with the people in their homes, he has the largest of opportunities to sense real needs and gain understanding of the ways to meet these. Democratized by this constant elbowing of the Democratic masses, he is applying to his field of action the progressive doctrine which seeks in every field of human activity to cure by preventing.

Through the long and honor-studded centuries of his profession, from the days of Hippocrates and Galen to these wondrous times of the Mayos and Carrel, his self-sacrifice, even to the point of martyrdom, and his heroism have glorified his skill and ability. Now, without any diminution of these resplendent virtues, he is widening his sphere of usefulness, stepping out of his title of doctor of medicine into the finer one of doctor of human welfare.—The North American, Saturday, September 27, 1913.

ANNOUNCEMENT OF THE LANE MEDICAL LIBRARY.

The arrangement, indexing and cataloguing of the Lane Medical Library are well advanced and are being rapidly done with an increased force of assistants.

The progress makes it possible for the trustees of Stanford University to announce to the medical profession and to the public that the collection of books is now available for consultation and use.

The library contains about 36,000 bound volumes in all, and 5,000 unbound volumes of journals. New books are purchased monthly as published, and at present 450 medical and scientific journals are subscribed for, which will be added to, as funds may permit. The present annual outlay for books and periodicals is about \$8,000, most of which, with maintenance charges, is paid from the income funds of the University.

The Lane library is the largest, best housed, best equipped, best supported, and most useful medical library west of Chicago, and the trustees intend to make it one of the best in America—an ambition justified by its resources and demanded by our isolated position.

The library is open to the public without charge. To bring it within the reach of physicians of the Pacific Coast and to aid in its extension and use, the trustees invite the medical profession to become subscribers to it upon either of the subjoined plans.

Donations of journals and books, which may add to the library or supply gaps in its "want list," will be gratefully received, whether large or small (transportation charges paid by the library), and will be preserved in its fireproof building for the permanent benefit of the profession.

The privileges of the Lane Medical Library will be extended to the profession and the public, subject to such rules and regulations as the library committee may prescribe, upon the following terms:

1. The consultation and use of books in the library is free.

2. To those subscribers who may desire the privilege of withdrawing books from the library, \$5 per annum.

3. To those subscribers who may desire all the privileges of the library for life, \$100.

The library is open on week days from 8:45 a. m. to 5:30 p. m.—7 p. m. to 9:30 p. m.

NEW MEMBERS.

Patric, Gladys, Los Angeles.
Lovejoy, Edw. D., Los Angeles.
Dakin, W. B., Los Angeles.
Karaki, Yasuzo, Los Angeles.
Elmer, Clyde J., Los Angeles.
Stallings, F. L., Lindsay, Cal.
Guinan, W. J., Smartsville, Cal.
Baer, Adolph, San Francisco.
Poket-Beasley, M. E., Tehama, Cal.
Bettin, Mona E., Los Angeles.
Macleish, A. C., Los Angeles.
Patten, F. E., Van Nuys, Cal.
Wallace, E. S. R., Los Angeles.
Crispen, E. L., Ocean Park, Cal.
Carling, Jno., Los Angeles.
Forline, Hamilton, Los Angeles.
Burns, Frank W., Los Angeles.

DEATHS.

Harris, J. T., San Jose, Cal.
Tyng, Anita E., Pasadena. (Died in Berkeley, Cal.)
Pedlar, Alfred J., Alameda.
Horan, Edw., San Francisco.
Lowry, Jno. H., Reedley, Cal.
Way, E. H., Riverside.

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